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FINAL

SITE INVESTIGATION REPORT FOR UNDERGROUND STORAGE TANK SITE 16144

Revision 0 September 19, 2005

MARINE CORPS BASE CAMP PENDLETON, CALIFORNIA

DCN: SES-TECH-05-0125

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ABBREVIATIONS AND ACRONYMS

μg/kg micrograms per kilogram

μg/L micrograms per literamsl above mean sea levelbgs below ground surface

BTEX benzene, toluene, ethylbenzene, and total xylenes

CAP Corrective Action Plan

DEH Department of Environmental Health

EO ether oxygenates

EPA U.S. Environmental Protection Agency

LCS laboratory control sample mg/kg milligrams per kilogram

mg/L milligrams per liter
MCB Marine Corps Base

MS matrix spike

MSD matrix spike duplicate
MTBE methyl tert-butyl ether

PAH polynuclear aromatic hydrocarbon

QC quality control RL reporting levels

RPD relative percent difference

RWQCB Regional Water Quality Control Board

SES-TECH Sealaska Environmental Services LLC and Tetra Tech EC, Inc.

SPLP synthetic precipitation leaching procedure

TPH-d total petroleum hydrocarbons quantified as diesel
TPH-g total petroleum hydrocarbons quantified as gasoline

TRPH total recoverable petroleum hydrocarbons

TtEC Tetra Tech EC, Inc.

TtFW Tetra Tech FW, Inc.

UST underground storage tank
VOC volatile organic compound

1.0 INTRODUCTION

This Site Investigation Report summarizes the results of site investigation activities conducted at Underground Storage Tank (UST) Site 16144 located at Marine Corps Base (MCB) Camp Pendleton, California (Figure 1-1). The site investigation was completed pursuant to a Work Plan that was reviewed and found acceptable by the California Regional Water Quality Control Board (RWQCB), San Diego Region in a letter dated February 2, 2005 (reference SMC: 50-0633.05:peurp). This report was prepared by SES-TECH, a joint venture between Sealaska Environmental Services LLC and Tetra Tech EC, Inc. (TtEC), on behalf of the United States Department of the Navy, Naval Facilities Engineering Command, Southwest, under Contract No. N68711-04-D-1104, Contract Task Order No. 0003.

UST Site 16144 is regulated under the Title 22 California Code of Regulations, Division 4.5, Chapter 14, Article 6, and the California Health and Safety Code, Sections 25187 through 25189, which require those responsible for the release of hazardous substances to take necessary corrective actions to remedy the release. The document guiding the investigation at the site is the San Diego County Land and Water Quality Division *Site Assessment and Mitigation Manual* 2005 [Department of Environmental Health (DEH), 2005]. The RWQCB is the lead regulatory agency overseeing environmental activities at the site.

1.1 OBJECTIVES AND SCOPE

Results of an Environmental Site Assessment completed in 2000 indicated that total petroleum hydrocarbons quantified as diesel (TPH-d) were present in shallow soils (less than approximately 20 feet deep), in deep soils (between approximately 30 to 40 feet deep), and in groundwater (Ninyo and Moore, 2000). Two groundwater monitoring wells were installed during the site assessment, and during sampling, one of the wells was found to be dry. It was concluded that the deep soil results were potentially not related to the site. Furthermore, due to the dry well, groundwater data were inadequate to determine quality and gradient. Thus, the primary objectives of this additional site investigation are to determine if the deeper TPH-d contamination is related to the site, and install additional monitoring wells to determine groundwater quality and gradient.

The general scope of work included:

- Drill and sample four soil borings to further evaluate the horizontal and vertical extent of TPH-d-impacted soil.
- Drill a shallow boring near a water line to determine if the line is leaking.
- Collect surface soil samples along a steep slope adjacent to the site to determine if contamination is migrating to the ground surface.
- Install and sample three additional groundwater monitoring wells.

1.2 SITE IDENTIFICATION

The following is a list of site identification data:

Site Address: UST Site 16144, 16 Area, MCB Camp Pendleton,

California 92055

Facility Name: Administration and General Storage Building

DES Case No. H05939-031

RWQCB Case No. 9UT631

Property Owner: United States Marine Corps

Contact Person: Mr. Chet Storrs

Remediation Branch Manager

Assistant Chief of Staff, Environmental Security

Marine Corps Base, Building 22165 Camp Pendleton, California 92055-5008

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Manager: Naval Facilities Engineering Command, Southwest

1220 Pacific Highway

San Diego, California 92132-5190

(619) 532-4814

Responsible Party: United States Marine Corps

1.3 SITE DESCRIPTION

The site is located behind an Administration/General Storage Building located in the 16 Area, MCB Camp Pendleton (Figure 1-2). The site is situated along the edge of the top of the east rim of Windmill Canyon at an approximate elevation of 400 feet above mean sea level. Immediately to the west of the site, the canyon wall begins sloping steeply to the canyon floor, approximately 280 feet below.

Two 1,000-gallon concrete reinforced USTs were installed behind Building 16144 in 1943. The tanks were used to supply diesel fuel to boilers in the facility for heating. The USTs were each 7 feet in height and 6 feet in diameter.

2.0 SITE BACKGROUND

The following sections present a summary of previous site investigations and a general summary of site geology and hydrogeology.

2.1 PREVIOUS SITE ACTIVITIES

An initial site assessment was conducted between December 1991 and February 1992 (Ninyo and Moore, 2000). Four borings (B16144-1 through -4) were drilled to 19 feet below ground surface (bgs), and one boring (B16144-6), located to the west of the tank cavity near the top of the canyon wall, was drilled to 50 feet bgs. Groundwater was encountered at approximately 45.5 feet bgs in boring B16144-6, but was not sampled. Soil samples were collected every 5 feet and analyzed for total recoverable petroleum hydrocarbons (TRPH) by U.S. Environmental Protection Agency (EPA) Method 418.1. Results indicated that TRPH was present in soil to the west of the tank cavity at a concentration up to 7,338 milligrams per kilogram (mg/kg) and up to 30 feet bgs. Results of the sampling are summarized on Table 2-1 and Figure 2-1.

In 1996, both USTs and all ancillary piping were removed from the site by the Navy Public Works Center (Ninyo and Moore, 2000). The UST excavation was approximately 10 feet by 12 feet, and 10 feet in depth. Groundwater was not encountered during tank removal activities. Following UST removal, three soil samples were collected from the excavation bottom (Figure 2-1). Each sample was analyzed for total petroleum hydrocarbons quantified as gasoline (TPH-g) and TPH-d. TPH-d was detected in all three samples at concentrations ranging from 370 mg/kg to 8,900 mg/kg (Table 2-1 and Figure 2-1), and TPH-g was not detected.

In 2000, an Environmental Site Assessment was conducted to further evaluate the nature and extent of diesel contamination (Ninyo and Moore, 2000). Nine soil borings (16144-B1 through -B9) were drilled to depths up to 70 feet bgs in the vicinity of the former UST. Boring 16144-B1 was located in the former tank cavity to assess the vertical extent of diesel in soil, and borings 16144-B2 through -B9 were located to further assess the lateral extent of contamination.

Groundwater grab samples (designated GW) were collected when groundwater was encountered. Groundwater was encountered in the four borings located near the western edge of the site between the former tank cavity and the edge of Windmill Canyon between approximately 40 and 50 feet bgs. Despite leaving the other five borings [which were all drilled between 50 and 70 feet bgs (B1, B5, B6, B8, and B9)] open for approximately 28 days, groundwater was not encountered in these borings.

Borings B3 and B7 were subsequently converted to groundwater monitoring wells MW1 and MW2, respectively. Groundwater was encountered at 43.6 feet bgs in MW1, and, after installing

well MW2 to 55 feet bgs, it was found to be dry. Light non-aqueous phase liquid was not observed at the site.

During drilling of the soil borings, soil samples were collected every 2.5 to 5 feet and analyzed for TPH-d and TPH-g. One sample from each of the borings that detected TPH-d (B1, B3, and B4) was also analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX), methyl tertbutyl ether (MTBE), other ether oxygenates (EO) (tert-butyl alcohol, di-isopropyl ether, ethyl tert-butyl ether, and tert-amyl methyl ether), polynuclear aromatic hydrocarbons (PAHs), and Synthetic Precipitation Leaching Procedure (SPLP)/TPH-d, SPLP/BTEX/MTBE, SPLP/EO, and SPLP/PAHs.

Soil sample results indicated that TPH-d was detected down to 10 feet beneath the former tank cavity (up to 6,200 mg/kg). Contamination was not detected below the former tank cavity between 10 and 70 feet bgs. TPH-d was also detected to the southwest of the former tank cavity between 30 and 40 feet bgs in boring B3, and at 5 feet and at 35 feet bgs in boring B4 (Figure 2-1). All other soil samples were non-detect for TPH-d. Relatively low levels of BTEX, and some PAHs (acenaphthene, fluorene, naphthalene, and phenanthrene) were reported in the samples selected for additional analyses (one sample from each boring that encountered TPH-d). Results of all soil sample analyses are included on Table 2-2, and the TPH-d results are also summarized on Figure 2-1.

Groundwater grab samples were collected during drilling from borings B2, B3, B4, and B7, and a groundwater sample was collected from MW1 (boring B3) after a permanent monitoring well was installed. TPH-d was detected in the grab sample from B2 at 0.4 milligrams per liter (mg/L), from B3 at 57 mg/L, and from B4 at 1.3 mg/L (Table 2-3). The groundwater sample from monitoring well MW1 (boring B3) contained TPH-d at 0.55 mg/L (Table 2-3). The groundwater sample from well MW1 was also analyzed for volatile organic compounds (VOCs) (including BTEX, MTBE, and EOs) and PAHs. VOCs and PAHs were not detected in MW1.

2.2 GEOLOGY AND HYDROGEOLOGY

The site is located in the San Luis Rey River-Windmill Canyon watershed. An unnamed ephemeral stream is located approximately 460 feet west of the site at the bottom of Windmill Canyon. The stream flows in a southerly direction, discharges into Windmill Lake and the San Luis Rey River, and has designated beneficial uses of agricultural supply, industrial service supply, contact and non-contact water recreation, warm freshwater habitat, and wildlife habitat. The nearest major surface water body is Lake O'Neill, located in a different watershed approximately 2 miles north of the site.

Based on available geologic and hydrogeologic literature, and observations during site investigation activities, the site is underlain by fill, the Tertiary-aged Santiago Formation, and Cretaceous-aged decomposed granite. The fill extends from near surface to approximately 7 feet

bgs and generally consisted of gray to brown silty sand. The Santiago Formation is present between approximately 7 feet bgs and 43 to 53 feet bgs, and typically consists of gray to greenish-gray siltstone to sandstone. The top of the decomposed granite was typically encountered between approximately 43 to 53 feet bgs.

The site is within the Mission Hydrologic Subarea (903.11) within the Lower San Luis Hydrologic Area of the San Luis Rey Hydrologic Unit. The hydrologic area has designated groundwater beneficial uses for municipal, agricultural, and industrial service supply. Based on Geographical Information System data provided by the Assistant Chief of Staff, Environmental Security, MCB Camp Pendleton, the nearest water supply well (10/4) is located approximately 1.5 miles northwest of the site, in the Santa Margarita Valley Groundwater Basin.

During the 2000 Environmental Site Assessment (Ninyo and Moore, 2000), groundwater was observed between 42 and 50 feet bgs, but only in the four borings located to the west of the former tank cavity closest to a water line located along the rim of Windmill Canyon (Figure 2-1). Groundwater was not observed in the remaining borings located within and to the east of the former tank cavity. These borings were drilled between 50 and 70 feet bgs, left open for over 28 days, and were still dry. Two groundwater monitoring wells were subsequently installed (MW1 and MW2), and groundwater was measured at approximately 44 feet bgs in MW1. However, after installing well MW2 to 55 feet bgs, it was found to be dry.

During the additional site investigation activities completed in 2005 (see Section 3.0), moist soil was encountered in borings B10, B11, and B12 between approximately 35 and 40 feet bgs. Based on this observation, each boring was left open for approximately 24 hours to determine if water would enter the boring. After the 24-hour period, enough water had entered the borings to support installing three new permanent 4-inch-diameter groundwater monitoring wells (MW3, MW4, and MW5, respectively). Boring B13 was also left open for 24 hours and water did not enter the boring. Groundwater was also encountered in boring B14, drilled next to the water line located adjacent to the edge of Windmill Canyon at approximately 6 feet bgs. Due to several factors including 1) the presence of shallow groundwater located adjacent to the water line at the edge of the canyon (6 feet bgs), 2) groundwater present at approximately 40 feet bgs in wells located between the water line and the former tank cavity, and 3) no groundwater previously reported up to 70 feet bgs beneath the former tank cavity (Ninyo and Moore, 2000), it appears that the groundwater near the former tank cavity is primarily present due to one or more leaks in the water line.

3.0 SITE INVESTIGATION

In July 2005, fieldwork for the site investigation at UST Site 16144 was completed in accordance with a site-specific Work Plan [Tetra Tech FW (TtFW), 2004].

3.1 SOIL AND GROUNDWATER SAMPLING

Following utility clearance and Base notification, four relatively deep soil borings (B10, B11, B12, and B13) were advanced around and between previously identified areas of shallow and deep contamination, and one relatively shallow boring (B14) was advanced adjacent to a nearby water line. The locations of these soil borings are shown on Figure 3-1. Soil boring logs [prepared in accordance with the Unified Soil Classification System (U.S. Bureau of Reclamation, 1986)], the boring permit, and well sampling forms are included in Appendix A. In addition, since data from the Environmental Site Assessment indicated that TPH-d-impacted soil had migrated toward the edge of Windmill Canyon, three surface soil grab samples were collected along the slope of the canyon at the same elevation that the contamination was detected in the nearby soil borings (the sampling locations were identified with the use of a Brunton compass and a tape measure) and analyzed for TPH-d. One surface soil sample was collected on the slope of the canyon wall near the deepest soil contamination encountered in previous boring B16144-6 (approximately 42 feet below the top of the canyon wall), and two surface soil samples were collected on the slope of the canyon wall near the soil contamination encountered in previous boring B3/MW1 (approximately 57 feet below the top of the canyon wall) (Figure 3-1).

Each soil boring was advanced using a hollow-stem auger drill rig to facilitate the collection of soil samples. Soil samples were collected every 5 feet to the total depth of each boring (except for shallow boring B14) using a split-spoon sampler lined with pre-cleaned stainless steel sleeves. Boring B14 was drilled to 15 feet to determine if the nearby water line was leaking, and only a water sample was collected from this boring. All soil samples were analyzed for TPH-d, and the sample from each boring with the highest TPH-d concentration was further analyzed for VOCs (including BTEX, MTBE, and other oxygenates), and PAHs. En Core® samplers were used to collect samples for VOC analysis, and the remaining sample sleeves were sealed with Teflon® sheets and plastic end caps, labeled, and placed in a pre-chilled ice chest in accordance with project-specified requirements (TtFW, 2004). All non-disposable sampling equipment was decontaminated before sampling, between samples, and prior to leaving the site.

The four deep borings (B10, B11, B12, and B13) were drilled and sampled to between 45 to 55 feet bgs, where granitic bedrock was encountered. During drilling, moist soil was encountered in borings B10, B11, and B12 between approximately 35 and 40 feet bgs. Based on this observation, each boring was left open for approximately 24 hours to determine if water would slowly enter the boring. After the 24-hour period, enough water had entered the borings to

support installing permanent 4-inch-diameter groundwater monitoring wells (MW3, MW4, and MW5, respectively) (Figure 3-2) (see Appendix A for well construction details). However, after waiting 24 hours, water did not enter B13, and the boring was backfilled with bentonite from total depth to the ground surface.

Boring B14 was drilled to 15 feet bgs next to the water line located adjacent to the site to evaluate whether the line was leaking and impacting local groundwater conditions. After waiting 24 hours, water entered the boring and rose to approximately 6 feet bgs. A grab sample of groundwater was collected with a disposable bailer and analyzed for VOCs, which included the analyses for trihalomethanes (chloroform, bromoform, bromodichloromethane, and dibromochloromethane). Trihalomethanes are common byproducts of the chlorination process of drinking water, and if trihalomethanes were present in the groundwater, it would further suggest the source of the water was the water line.

After installing the three new groundwater monitoring wells, the wells were developed, and a survey was performed by a state of California-certified surveyor to delineate the location and elevation of each well (see boring logs, Appendix A). These parameters were determined to an accuracy of 0.01 foot vertically and 0.1 foot horizontally, and were in accordance with the North American Datum 83 and the North American Vertical Datum 88, respectively.

Groundwater samples were collected from each of the new wells on July 21, 2005. Existing well MW2 was dry, and MW1 was not sampled because free product was present (0.09 feet). All groundwater samples were analyzed for TPH-d, VOCs, and PAHs.

Prior to groundwater sampling, the depth to water in each well was measured and recorded on a well sampling log (Appendix A). The depths were measured from the top of the well casing. Table 3-1 provides a summary of the groundwater elevation data. Before sampling, a bladder pump was slowly lowered into each well and positioned near the center of the screen interval. In addition, a water level indicator was placed at the water surface to monitor water-level drawdown during purging. While purging at the lowest operational setting of the pump, which was approximately 100 to 110 milliliters per minute, the water level surface began to drop and exceeded the minimum drawdown requirement of 0.33 feet.

Because a stabilized water level could not be achieved, even at very low pumping rates, a passive, or minimum purge, sampling method was performed following the methodology presented in an EPA Groundwater Issue paper titled Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures (Puls and Barcelona, 1996). The passive/minimal purge approach requires the removal of a minimum of three volumes of the sampling system from each well. The liquid volume of the sampling system consists of the volume of the pump's bladder, discharge tubing and flow through cell attached to the water quality meter. After purging, the required volume at the lowest flow rate achievable for each well, a groundwater sample was collected. To monitor groundwater conditions during purging, water quality parameters were measured

including: temperature, pH, electrical conductivity, turbidity, dissolved oxygen, and oxygen/reduction potential. These measurements were recorded on the well sampling logs provided in Appendix A. All non-disposable down-hole equipment, such as the pump and water-level indicator, were decontaminated between wells.

Groundwater samples were collected through new polyethylene discharge tubing, which was connected to the bladder pump. Each sample was collected in the appropriate containers, labeled, and placed in a cooler with ice immediately after sample collection for delivery to the analytical laboratory.

3.2 WASTE MANAGEMENT

Wastes from the site characterization activities (soil cuttings, decontamination water, and well purge water) were containerized in Department of Transportation approved 55-gallon drums and transported to an appropriate disposal facility. The handling, management, transportation, and disposal of wastes were conducted in accordance with state and federal laws and regulations. No wastes were stored at the site for more than 60 days. A copy of the waste manifest is included as Appendix B.

4.0 ANALYTICAL RESULTS

The analytical results for soil and groundwater samples collected during the additional site investigation are discussed in this section, summarized in Tables 4-1 and 4-2, and presented on Figures 3-1 and 3-2. A cross section through the site is also included as Figure 3-3. Copies of the laboratory reports and chain-of-custody forms are provided in Appendix C.

4.1 SOIL BORING ANALYTICAL RESULTS

All soil samples were analyzed for TPH-d, and the sample from each boring with the highest TPH-d concentration was further analyzed for VOCs (including BTEX, MTBE, and other oxygenates), and PAHs. TPH-d was detected in B11 at 5 feet bgs (2,000 mg/kg), 10 feet bgs (1,400 mg/kg) and 30 feet bgs (23,000 mg/kg), and in B12 at 25 feet bgs (13 mg/kg). TPH-d was not detected in any of the soil samples collected from borings B10 and B13 (Figure 3-1).

The soil samples from 30 feet bgs in B11 and from 25 feet bgs in B12 were further analyzed for VOCs and PAHs. The only VOC reported was acetone. Acetone, a likely laboratory contaminant, was reported at an estimated value of 21 micrograms per kilogram (μ g/kg) in B11, and at an estimated value of 28 μ g/kg in B12 (Table 4-1). Several PAHs were also reported to be present in both samples at low to estimated (trace) levels (Table 4-1).

4.2 SURFACE SOIL ANALYTICAL RESULTS

The three surface soil samples collected on the slope of Windmill Canyon (SS1, SS2, and SS3) (Figure 3-1) were analyzed for TPH-d. Surface soil sample SS3 was collected at the same elevation as the deepest soil contamination encountered in previous boring B16144-6 (approximately 42 feet below the top of the canyon wall), and surface soil samples SS1 and SS2 were collected at the same elevation as the soil contamination encountered in previous boring B3/MW1 (approximately 57 feet below the top of the canyon wall).

TPH-d was not detected in the surface soil sample collected near boring B16144-6; however, very low levels of TPH-d were reported (with chromatograms that displayed a heavier fuel pattern than diesel) in the two samples collected near boring B3/MW1. It was reported that surface soil sample SS1 contained 11 mg/kg of TPH-d, and surface soil sample SS3 contained 10 mg/kg of TPH-d (Figure 3-1).

4.3 GROUNDWATER SAMPLE ANALYTICAL RESULTS

On July 21, 2005, groundwater samples were collected from new wells MW3, MW4, and MW5. Existing well MW2 was dry, and MW1 was not sampled because free product (0.09 feet) was present. All groundwater samples were analyzed for TPH-d, VOCs, and PAHs.

TPH-d was detected in each well. MW3 contained TPH-d at 0.27 mg/L, MW4 contained 4.9 mg/L of TPH-d, and MW5 contained 6.3 mg/L of TPH-d. Trace to very low levels of some VOCs were also detected, including cis-1,2-dichloroethene in MW5 at 0.77 micrograms per liter (μ g/L) (Table 4-2). Toluene was detected in each well up to a maximum of 0.64 μ g/L, total xylenes were detected in MW3 at 0.43 μ g/L, and methyl ethyl ketone was reported in MW5 at 5.4 μ g/L. Acetone, a common laboratory contaminant, was also reported in well MW5 at 17 μ g/L (Table 4-2). PAHs were not detected in any of the wells.

The groundwater grab sample collected from 6 feet bgs in boring B14 (located adjacent to the water line along the western edge of the site) was analyzed for VOCs, including trihalomethanes. No VOCs, including trihalomethanes, were detected in B14.

Prior to collecting groundwater samples, water level elevations were recorded in each well. As shown on Figure 3-2, groundwater elevations at the site ranged from approximately 398 feet above mean sea level (amsl) at B14 (located near the water line along the edge of Windmill Canyon) to 360.03 feet amsl at MW1. Based on water the levels measured in July 2005, groundwater is flowing to the east with a steep gradient between approximately 2.5 to 8 feet per foot. Due to the steep groundwater gradient to the east from the water line along the edge of Windmill Canyon, and the absence of groundwater to 70 feet bgs as indicated during the 2000 Environmental Site Assessment (Ninyo and Moore, 2000), it is clear that the water line is leaking and impacting local groundwater conditions (Figure 3-2).

5.0 QUALITY ASSURANCE AND QUALITY CONTROL

All samples were collected and preserved in accordance with the San Diego County DEH Land and Water Quality Division *Site Assessment and Mitigation Manual 2005* (DEH, 2005). Samples were transported to the analytical laboratory following sample collection and were analyzed within the method-specific analytical holding times. EMAX Laboratories Inc., a State of California-certified and Naval Facilities Engineering Service Center-evaluated laboratory, performed the sample analyses for this project. This section summarizes quality assurance and quality control (QC) results for the site investigation sampling and analysis activities.

To assess sampling variability, one groundwater field duplicate sample was collected at MW5 (identified as 0003-060) and analyzed for VOCs, TPH-d, and PAHs. The relative percent difference (RPD) between the field duplicate and primary sample (identified as 0003-059) for TPH-d was 10 percent, indicating excellent field precision. The calculated RPD for detected VOCs (acetone and cis-1,2-dichloroethene) were 34 and 8 percent, respectively indicating acceptable field precision. High RPDs are expected for sample results near the reporting levels (RLs). No PAHs were detected in any of the samples; therefore, the RPD between the field duplicate and the original sample could not be calculated. A soil field duplicate (identified as 0003-018) was also collected at boring B11. Since TPH-d was not detected in either the original sample (identified as 0003-017) or the duplicate sample, the RPD could not be calculated.

In accordance with the analytical method specifications, method blanks, surrogate spikes, and laboratory control samples (LCSs) were analyzed to assess method accuracy and precision. A matrix spike (MS) and matrix spike duplicate (MSD) sample pair was also analyzed by the laboratory.

No detectable levels of TPH-d, VOCs, or PAHs were found in the method blanks above half the project RLs during this event. Percent recoveries in LCSs, surrogates, and MS/MSD samples, as well as RPDs between unspiked and spiked sample duplicates, were well within the project-specific QC acceptance limits with one exception. Surrogates in two of the samples for TPH-d and PAHs were recovered high due to matrix effect caused by high native concentrations.

A third-party validation company, Laboratory Data Consultants, Inc., located in Carlsbad, California, performed validation of the laboratory data. Four samples out of 43 were validated in accordance with EPA Level IV protocols, and the remaining samples were validated in accordance with EPA Level III protocols. The validation reported that all of the applicable criteria were met for all of the samples with a few minor exceptions. Data validation reported only minor discrepancies, which resulted in "J" qualifiers (estimated value) applied to some of the sample results.

6.0 SUMMARY AND RECOMMENDATIONS

The sections below summarize the results of the site investigation, provide an evaluation of site data, and include recommendations for future work.

6.1 SUMMARY

Results from site investigation activities at UST Site 16144 indicate that the extent of dieselimpacted soil (TPH-d greater than 100 mg/kg) extends from the former tank cavity to the northwest approximately 30 feet, and from the former tank cavity to the southwest approximately 50 feet (see Figure 3-1). TPH-d was encountered in relatively shallow soils beneath the former tank cavity (up to 10 feet bgs), and in deeper soils located both to the northwest (up to 30 feet bgs) and to the southwest (up to 40 feet bgs) of the former tank cavity. The highest reported concentration of diesel (TPH-d) was 23,000 mg/kg located to the northwest of the former tank cavity at 30 feet bgs (B11). Surface soil samples collected along the canyon slope at the same depth as contamination previously detected in nearby soil borings indicated that TPH-d has not migrated to the canyon slope to the northwest of the former tank cavity and was reported in very low levels (10 mg/kg and 11 mg/kg) (with chromatograms that displayed a heavier fuel pattern than diesel) along the slope located to the southwest of the former tank cavity.

During the Environmental Site Assessment (Ninyo and Moore, 2000) groundwater was encountered between approximately 40 and 50 feet bgs in soil borings located to the west of the former tank cavity relatively close to the water line located along the edge of Windmill Canyon. Despite leaving the other soil borings located within, and to the east of the former tank cavity open for approximately 28 days, which were all drilled between 50 and 70 feet bgs (B1, B5, B6, B8, and B9), groundwater was not encountered in these borings. This data suggested the water line located along the rim of Windmill Canyon could be leaking and influencing local groundwater conditions.

During the site investigation three additional groundwater monitoring wells were installed and a shallow boring was drilled next to the water line to determine the direction of groundwater flow and if the water line was leaking. Site investigation data indicated shallow groundwater was present next to the water line (6 feet bgs in B14), groundwater was present at approximately 40 feet bgs in wells located between the water line and the former tank cavity (MW3, MW4, and MW5), and groundwater was not present up to 55 feet bgs relatively near the water line to the south of the former tank cavity (B13). This data, along with the fact that groundwater was not previously encountered up to 70 feet bgs beneath the former tank cavity (Ninyo and Moore, 2000), indicate that groundwater is flowing from the water line located west of the former tank cavity to the east with a steep gradient (see Figure 3-2). Since groundwater was not encountered near the water line south of the tank cavity to 55 feet bgs (B13), the water line may not be

leaking, or may not be leaking as much, in that area. Overall, water elevation data indicate that groundwater near the former tank cavity is primarily present due to one or more leaks in the water line.

To evaluate groundwater quality, groundwater samples were collected from the three new monitoring wells (MW3, MW4, and MW5). Existing well MW2 was dry, and existing well MW1 was not sampled due to the presence of free product (0.09 feet). TPH-d was detected in each well between 0.27 and 6.3 mg/L. Trace to very low levels of some VOCs were also detected, including cis-1,2-dichloroethene (0.77 μ g/L), toluene (up to 0.64 μ g/L), total xylenes (0.43 μ g/L), and methyl ethyl ketone (5.4 μ g/L) (see Table 4-2). PAHs were not detected in any of the wells.

Overall, results from the site investigation indicate that the local hydrogeology is significantly impacted by the water line located to the west of the former tank cavity. Data indicate that diesel leaked from the former UST and migrated from the former tank cavity to the west toward the water line located on the edge of Windmill Canyon (Figure 3-3). Water elevation data indicate that the water line is leaking and groundwater is flowing to the east with a steep gradient toward the former tank cavity. At the one location where free product was encountered (MW1), it appears that impacted soil, migrating to the west, intersected the top of groundwater that has a steep gradient to the east. Based on this observation, it appears that free product may only potentially be present where, due to the unusual geometry of the top of groundwater and the location of impacted soil, the top of groundwater and impacted soil intersect.

6.2 RECOMMENDATIONS

As discussed above, site investigation results further delineated the extent of diesel-impacted soil and the unusual nature of groundwater at the site. Recommendations for future work are based on current site conditions that include 1) the original contaminant source, the leaking USTs, have been removed, 2) it took at least 24 hours for groundwater to appear in the soil borings before deciding if it was possible to collect samples with permanent wells, suggesting that either the transmissivity of the aquifer is very low, or, more likely, the water line is leaking at a rate that is not "recharging" the aquifer as fast as would be expected in a "natural" aquifer, and 3) the site is on a topographic high at the rim of a canyon 1.5 miles from the nearest water supply well. Based on current site conditions and location, significant active soil and groundwater remediation is not recommended at this time. However, it is proposed that a Corrective Action Plan be prepared for agency review that recommends the following:

- Record groundwater elevations and collect groundwater samples quarterly for one year to evaluate groundwater quality and potential contaminant concentration trends.
- Recover the free product from MW1 during the groundwater monitoring program. Due to the relatively small amount of product currently present (0.09 feet), *in situ* product recovery socks, or potentially a solar-powered recovery trailer, may be used.

7.0 REFERENCES

- Ninyo and Moore. 2000. Environmental Site Assessment Report for UST Site 16144, Marine Corps Base Camp Pendleton, San Diego County, California. Prepared by Ninyo and Moore under Contract No. N68711-96-C-2206 for the Naval Facilities Engineering Command, Southwest Division. December.
- Puls, R., and M.J. Barcelona. 1996. Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. April.
- San Diego County, Department of Environmental Health (DEH), Land and Water Quality Division. 2005. *Site Assessment and Mitigation (SAM) Manual 2005*.
- Tetra Tech FW, Inc. (TtFW). 2004. Final Additional Site Investigation Work Plan For Underground Storage Tank Site 16144. Revision 0. December.
- U.S. Bureau of Reclamation. 1986. Visual Classification of Soils, Unified Soil Classification System, Geotechnical Branch Training Manual No. 5.

TABLES

SUMMARY OF 1991/1992 INITIAL SITE ASSESSMENT AND 1996 TANK REMOVAL SOIL SAMPLE RESULTS, UST SITE 16144

TABLE 2-1

Sample Location	Sample ID	Date Sampled	Depth (feet bgs)	TPH-g (mg/kg)	TPH-d (mg/kg)	TRPH (mg/kg)
	B16144-1-5	3-Dec-91	5			771
Boring	B16144-1-10	3-Dec-91	10			403
B16144-1	B16144-1-15	3-Dec-91	15			ND
	B16144-1-19	3-Dec-91	19			ND
	B16144-2-5	30-Jan-92	5			ND
Boring	B16144-2-10	30-Jan-92	10			ND
B16144-2	B16144-2-15	30-Jan-92	15			ND
	B16144-2-19	30-Jan-92	19			109
	B16144-3-5	30-Jan-92	5			ND
Boring	B16144-3-10	30-Jan-92	10			ND
B16144-3	B16144-3-15	30-Jan-92	15			ND
	B16144-3-19	30-Jan-92	19			ND(ND)
	B16144-4-5	31-Jan-92	5			ND
Boring	B16144-4-10	31-Jan-92	10			ND
B16144-4	B16144-4-15	31-Jan-92	15			ND
	B16144-4-19	31-Jan-92	19			ND
	B16144-6-5	21-Feb-92	5			ND
	B16144-6-10	21-Feb-92	10			ND
	B16144-6-15	21-Feb-92	15			2,826(2,493)
	B16144-6-20	21-Feb-92	20			ND
ъ :	B16144-6-25	21-Feb-92	25			ND
Boring B16144-6	B16144-6-28	21-Feb-92	28			108
D 10144-0	B16144-6-30	21-Feb-92	30			7,338
	B16144-6-35	21-Feb-92	35			ND
	B16144-6-40	21-Feb-92	40			ND
	B16144-6-45	21-Feb-92	45			ND
	B16144-6-50	21-Feb-92	50			ND
	16144-A	17-Sep-96	10	ND	8,900	
UST Excavation	16144-B	17-Sep-96	11	ND	1,900	
	16144-C	17-Sep-96	11	ND	370	
Detection Limits				10	10	10

Notes:

-- not analyzed for listed constituent

() duplicate analysis of sample

bgs - below ground surface

mg/kg - milligrams per kilogram

ND - analyte not detected at or above method detection limit TPH-d - total petroleum hydrocarbons quantified as diesel TPH-g - total petroleum hydrocarbons quantified as gasoline

TRPH - total recoverable petroleum hydrocarbons

UST - Underground Storage Tank

TABLE 2-2
SUMMARY OF 2000 ENVIRONMENTAL SITE ASSESSMENT SOIL SAMPLE RESULTS, UST SITE 16144

		Date	Depth	TRPH	TPH-g	TPH-d	SPLP/TPH-d	BTEX/M	ITBE	SPLP/BTI	EX/MTBE	EOs	SPLP/EOs	PAHs		SPLP/P	PAHs
Sample Location	Sample ID	Sampled	(feet bgs)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/k		(mg		(mg/kg)	(mg/L)	(mg/kg		(mg/l	
	16144-B1-02.5	10-Jul-00	2.5		ND	ND			<u>U</u> ,	-							
	16144-B1-05	10-Jul-00	5		ND	730				-	-						
	16144-B1-07.5	10-Jul-00	7.5		ND	2,000				-	-						
	16144-B1-10	10-Jul-00	10		ND	6,200	1.30	benzene toluene ethylbenzene	0.071 0.20 0.52	benzene toluene ethylbenzene	0.00078 0.00096 0.029	ND	ND	acenaphthene fluorene naphthalene	0.70 1.3 1.7	naphthalene	0.035
								xylenes MTBE	2.2 ND	xylenes MTBE	0.031 0.063(ND)			phenanthrene	2.8		
	16144-B1-12.5	10-Jul-00	12.5		ND	ND				-	-						
	16144-B1-15	10-Jul-00	15		ND	ND											
Boring	16144-B1-17.5	10-Jul-00	17.5		ND	ND				-	-						
16144-B1	16144-B1-22.5	10-Jul-00 22.5 ND ND		-	-												
	16144-B1-25	10-Jul-00	25		ND	ND											
	16144-B1-30	10-Jul-00	30		ND	ND											
	16144-B1-35	10-Jul-00	35		ND	ND				-	-						
	16144-B1-40	10-Jul-00	40		ND	ND				-	-						
	16144-B1-45	10-Jul-00	45		ND	ND				-	-						
	16144-B1-50	10-Jul-00	50		ND	ND											
	16144-B1-55	10-Jul-00	55		ND	ND				-							
	16144-B1-60	10-Jul-00	60		ND	ND				-	-						
	16144-B1-65	10-Jul-00	65		ND	ND				-	-						
	16144-B1-70	10-Jul-00	70		ND(ND)	ND(ND)				-	-						
	16144-B2-02.5	10-Jul-00	2.5	-	ND	ND				-	-		-				
	16144-B2-05	10-Jul-00	5		ND	ND				-	-						
	16144-B2-10	10-Jul-00	10		ND	ND				-	-						
	16144-B2-15	10-Jul-00	15		ND	ND				-	-						
	16144-B2-20	10-Jul-00	20		ND	ND				-	_						
Boring	16144-B2-25	10-Jul-00	25		ND	ND				_	-						
16144-B2	16144-B2-30	10-Jul-00	30		ND	ND				-	-						
101 44- D2	16144-B2-35	10-Jul-00	35		ND	ND				-	-						
	16144-B2-40	10-Jul-00	40		ND	ND				-	_						
	16144-B2-45	10-Jul-00	45		ND	ND				_							
	16144-B2-50	12-Jul-00	50		ND(ND)	ND(ND)				-	_						
	16144-B2-55	12-Jul-00	55		ND	ND				_	-						
	16144-B2-60	12-Jul-00	60		ND	ND				-	-						

TABLE 2-2
SUMMARY OF 2000 ENVIRONMENTAL SITE ASSESSMENT SOIL SAMPLE RESULTS, UST SITE 16144

G 1.T (a l ID	Date	Depth	TRPH	TPH-g	TPH-d	SPLP/TPH-d	BTEX/MTBE	SPLP/	BTEX/MTBE	EOs	SPLP/EOs	PAHs	SPLP/PAHs				
Sample Location	Sample ID	Sampled	(feet bgs)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)		(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)				
	16144-B3-02.5	12-Jul-00	2.5		ND	ND												
	16144-B3-05	12-Jul-00	5		ND	ND												
	16144-B3-07.5	12-Jul-00	7.5		ND	ND												
	16144-B3-10	12-Jul-00	10		ND	ND												
	16144-B3-15	12-Jul-00	15		ND(ND)	ND(ND)												
Boring	16144-B3-20	12-Jul-00	20		ND	ND												
16144-B3	16144-B3-25	12-Jul-00	25		ND	ND												
10144-D3	16144-B3-30	12-Jul-00	30		ND	19												
	16144-B3-35	12-Jul-00	35		ND	2,200												
	16144-B3-40	12-Jul-00	40		ND	3,600	1.60	ND	benzene	0.00033	ND	ND	fluorene 0.63 naphthalene 1.5	naphthalene 0.028				
	16144-B3-45	12-Jul-00	45		ND	ND												
	16144-B3-50	12-Jul-00	50		ND	ND												
	16144-B4-05	12-Jul-00	5		ND	180	0.14	ND	benzene xylenes			ND	ND	ND				
	16144-B4-10	12-Jul-00	10		ND	ND												
	16144-B4-15	12-Jul-00	15		ND	ND												
	16144-B4-20	12-Jul-00	20		ND	ND												
	16144-B4-25	12-Jul-00	25		ND	ND												
Boring	16144-B4-27.5	12-Jul-00	27.5		ND	ND												
16144-B4	16144-B4-30	12-Jul-00	30		ND	ND												
	16144-B4-35	12-Jul-00	35		ND	750												
	16144-B4-40	12-Jul-00	40		ND	ND												
	16144-B4-45	12-Jul-00	45		ND	ND												
	16144-B4-50	12-Jul-00	50		ND	ND												
	16144-B4-55	12-Jul-00	55		ND	ND												
	16144-B4-60	12-Jul-00	60		ND(ND)	ND(ND)												
	16144-B5-05	13-Jul-00	5		ND	ND												
	16144-B5-10	13-Jul-00	10		ND	ND												
	16144-B5-15	13-Jul-00	15		ND	ND												
	16144-B5-20	13-Jul-00	20		ND	ND												
	16144-B5-25	13-Jul-00	25		ND	ND												
	16144-B5-30	13-Jul-00	30		ND	ND												
	16144-B5-35	13-Jul-00	35		ND	ND												
	16144-B5-40	13-Jul-00	40		ND	ND												
	16144-B5-45	13-Jul-00	45		ND	ND												
	16144-B5-50	13-Jul-00	50		ND	ND												

TABLE 2-2
SUMMARY OF 2000 ENVIRONMENTAL SITE ASSESSMENT SOIL SAMPLE RESULTS, UST SITE 16144

C	CI- ID	Date	Depth	TRPH	TPH-g	TPH-d	SPLP/TPH-d	BTEX/MTBE	SPLP/BTEX/MTBE	EOs	SPLP/EOs	PAHs	SPLP/PAHs
Sample Location	Sample ID	Sampled	(feet bgs)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)
	16144-B6-02.5	13-Jul-00	2.5		ND	ND							
	16144-B6-05	13-Jul-00	5		ND	ND							
	16144-B6-07.5	13-Jul-00	7.5		ND	ND							
	16144-B6-10	13-Jul-00	10		ND	ND							
	16144-B6-15	13-Jul-00	15		ND	ND							
D - viv	16144-B6-20	13-Jul-00	20		ND	ND							
Boring 16144-B6	16144-B6-25	13-Jul-00	25		ND	ND							
101 44 - D 0	16144-B6-27.5	13-Jul-00	27.5		ND	ND							
	16144-B6-30	13-Jul-00	30		ND	ND							
	16144-B6-35	13-Jul-00	35		ND(ND)	ND(ND)							
	16144-B6-40	13-Jul-00	40		ND	ND							
	16144-B6-45	13-Jul-00	45		ND	ND							
	16144-B6-50	13-Jul-00	50		ND	ND							
	16144-B7-02.5	14-Jul-00	2.5		ND	ND							
	16144-B7-05	14-Jul-00	5		ND	ND							
	16144-B7-07.5	14-Jul-00	7.5		ND	ND							
	16144-B7-10	14-Jul-00	10		ND	ND							
	16144-B7-15	14-Jul-00	15		ND	ND							
Davina	16144-B7-20	14-Jul-00	20		ND	ND							
Boring 16144-B7	16144-B7-25	14-Jul-00	25		ND	ND							
101 44 -D/	16144-B7-27.5	14-Jul-00	27.5		ND	ND							
	16144-B7-30	14-Jul-00	30		ND	ND							
	16144-B7-35	14-Jul-00	35		ND	ND							
	16144-B7-40	14-Jul-00	40		ND	ND							
	16144-B7-45	14-Jul-00	45		ND	ND							
	16144-B7-50	14-Jul-00	50		ND	ND							
	16144-B8-02.5	14-Jul-00	2.5		ND	ND							
	16144-B8-05	14-Jul-00	5		ND	ND							
	16144-B8-07.5	14-Jul-00	7.5		ND	ND							
	16144-B8-10	14-Jul-00	10		ND	ND							
	16144-B8-15	14-Jul-00	15		ND	ND							
Roring	16144-B8-20	14-Jul-00	20		ND	ND							
Boring 16144-B8	16144-B8-25	14-Jul-00	25		ND	ND							
101 44 -D0	16144-B8-27.5	14-Jul-00	27.5		ND	ND							
	16144-B8-30	14-Jul-00	30		ND	ND							
	16144-B8-35	14-Jul-00	35		ND	ND							
	16144-B8-40	14-Jul-00	40		ND	ND							
	16144-B8-45	14-Jul-00	45		ND	ND							
	16144-B8-50	14-Jul-00	50		ND	ND							

TABLE 2-2

SUMMARY OF 2000 ENVIRONMENTAL SITE ASSESSMENT SOIL SAMPLE RESULTS, UST SITE 16144

Sample Location	Sample ID	Date Sampled	Depth (feet bgs)	TRPH (mg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	SPLP/TPH-d (mg/L)	BTEX/MTBE (mg/kg)	SPLP/BTEX/MTBE (mg/L)	EOs (mg/kg)	SPLP/EOs (mg/L)	PAHs (mg/kg)	SPLP/PAHs (mg/kg)
	16144-B9-05	1-Aug-00	5		ND	ND							
	16144-B9-07.5	1-Aug-00	7.5		ND(ND)	ND(ND)							
	16144-B9-10	1-Aug-00	10		ND	ND							
	16144-B9-15	1-Aug-00	15		ND	ND							
Boring	16144-B9-20	1-Aug-00	20		ND	ND							
16144-B9	16144-B9-30	1-Aug-00	30		ND	ND							
	16144-B9-40	1-Aug-00	40		ND	ND							
	16144-B9-50	1-Aug-00	50		ND	ND						-	
	16144-B9-55	1-Aug-00	55		ND	ND							
	16144-B9-60	2-Aug-00	60		ND	ND							
Detection Limits				10	10	10	0.10						

Notes

() - Duplicate laboratory analysis

-- not analyzed for listed constituent

bgs - below ground surface

mg/kg - milligrams per kilogram

mg/L - milligrams per liter

BTEX/MTBE - benzene, toluene, ethylbenzene, total xylenes, and methyl tert-butyl ether

EOs - ether oxygenates which include methyl tert-butyl ether, tert-butyl alcohol, di-isopropyl ether, ethyl tert-butyl ether, and tert-amyl methyl ether

ND - analyte not detected at or above method detection limit

PAH - polynuclear aromatic hydrocarbon

SPLP - Synthetic Precipitation Leaching Proceedure

TPH-d - total petroleum hydrocarbons quantified as diesel fuel

TPH-g - total petroleum hydrocarbons quantified as gasoline

TRPH - total recoverable petroleum hydrocarbons

UST - Underground Storage Tank

TABLE 2-3

SUMMARY OF 2000 ENVIRONMENTAL SITE ASSESSMENT GROUNDWATER SAMPLE RESULTS, UST SITE 16144

Sample ID	Date Sampled	TPH-g (mg/L)	TPH-d (mg/L)	BTEX/MTBE (µg/L)	VOCs (inc. EOs) (µg/L)	PAHs (μg/L)
16144-B2-GW1	12-Jul-00	ND	0.40			
16144-B3-GW1	12-Jul-00	ND	57			
16144-B3/MW1	7-Sep-00	ND	0.54(0.55)	ND	ND	ND
16144-B4-GW1	14-Jul-00	ND	1.30			
16144-B7-GW1	17-Jul-00	ND	ND			
Detection Limits		0.10	0.10	Various	Various	Various

Notes:

() Laboratory duplicate analysis.

-- - not analyzed

μg/L - micrograms per liter

BTEX/MTBE - benzene, toluene, ethylbenzene, total xylenes and methyl tert-butyl ether

EOs - ether oxygenates which include methyl tert-butyl ether, tert-butyl alcohol, diisopropyl ether, ethyl-tert butyl ether, and tert-amyl methyl ether

mg/L - milligrams per liter

ND - not detected

PAH - polynuclear aromatic hydrocarbon

TPH-d - total petroleum hydrocarbons quantified as diesel

TPH-g - total petroleum hydrocarbons quantified as gasoline

 $UST - Underground \ Storage \ Tank$

VOC - volatile organic compounds

TABLE 3-1

SUMMARY OF 2005 SITE INVESTIGATION WATER LEVEL ELEVATIONS UST SITE 16144, MCB CAMP PENDELTON, CA

Monitoring Well	Well Screen Interval (feet btoc)	Reference Point (toc) Elevation (feet amsl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet amsl)	Comments
MW1	35-50	403.30	21-Jul-05	42.45	360.85	0.09 feet free product
MW2	40-55	402.48	21-Jul-05	Dry	Dry	
MW3	30-45	402.53	21-Jul-05	40.68	361.85	
MW4	30-45	402.76	21-Jul-05	41.42	361.34	
MW5	29-44	403.29	21-Jul-05	41.87	361.42	

Notes:

amsl- above mean sea level btoc- below top of casing

MCB- Marine Corps Base

toc- top of casing

UST- Underground Storage Tank

SUMMARY OF 2005 SITE INVESTIGATION SOIL SAMPLE RESULTS UST SITE 16144, MCB CAMP PENDLETON

TABLE 4-1

					VOCs1								
					(μg/kg)			PA	AHs ¹ (r	ng/kg)		
Soil Location	Depth Sampled (feet bgs)	Sample ID	Date Sampled	TPH-d (mg/kg)	Acetone	Naphthalene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Benzo[a]anthracene	Chrysene	Benzo[k]fluoranthene
B10	5	0003-046	7/12/05	ND									
	10	0003-047	7/12/05	ND									
	15	0003-048	7/12/05	ND									
	20	0003-049	7/12/05	ND									
	25	0003-050	7/12/05	ND									
	30	0003-051	7/12/05	ND									
	35	0003-052	7/12/05	ND									
	40	0003-053	7/12/05	ND									
	45	0003-054	7/12/05	ND									
B11	5	0003-009	7/11/05	2,000									
	10	0003-010	7/11/05	1,400									
	15	0003-011	7/11/05	ND									
	20	0003-012	7/11/05	ND									
	25	0003-013	7/11/05	ND									
	30	0003-014	7/11/05	23,000	21 J	4.10	0.39	1.70	2.80	0.73	1.80	0.21	0.58
	35	0003-015	7/11/05	ND									
	40	0003-016	7/11/05	ND									
	45	0003-017	7/11/05	ND									
	45	0003-018(dup)	7/11/05	ND									
D10	50	0003-019	7/11/05	ND									
B12	5	0003-023	7/11/05	ND									
	10	0003-024	7/11/05	ND									
	15	0003-025	7/11/05	ND									
	20	0003-026	7/11/05	ND									
	25	0003-027	7/11/05	13 ³	28 J	.018 J	0.017J	0.08	0.95	0.07	ND	0.06	0.02
	30	0003-028	7/11/05	ND									
	35	0003-029	7/11/05	ND									
	40	0003-030	7/11/05	ND									
D12	45	0003-031	7/11/05	ND									
B13	5	0003-035	7/12/05	ND									
	10	0003-036	7/12/05	ND									
	15	0003-037	7/12/05	ND									
	20	0003-038	7/12/05	ND									
	25	0003-039	7/12/05	ND									
	30	0003-040	7/12/05	ND									
	35	0003-041	7/12/05	ND									
	40	0003-042	7/12/05	ND									
	45	0003-043	7/12/05	ND									
	50 55	0003-044	7/12/05	ND									
	55	0003-045	7/12/05	ND									

TABLE 4-1

SUMMARY OF 2005 SITE INVESTIGATION SOIL SAMPLE RESULTS UST SITE 16144, MCB CAMP PENDLETON

					VOCs ¹ (μg/kg)	PAHs ¹ (mg/kg)							
Soil Location	Depth Sampled (feet bgs)	Sample ID	Date Sampled	TPH-d (mg/kg)	Acetone	Naphthalene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Benzo[a]anthracene	Chrysene	Benzo[k]fluoranthene
SS-1	Surface ²	0003-020	7/11/05	11^3									
SS-2	Surface ²	0003-021	7/11/05	10^{3}		1		-	-	-	1	-	
SS-3	Surface ²	0003-022	7/11/05	ND									

Notes:

¹ Only analytes with reported detects listed

-- - not analyzed

 $\mu g/kg$ - micrograms per kilogram

bgs - below ground surface

dup - duplicate

J - estimated value

MCB - Marine Corps Base

mg/kg - milligrams per kilogram

ND - not detected

PAH - polynuclear aromatic hydrocarbon

TPH-d - total petroleum hydrocarbons quantified as diesel

UST - Underground Storage Tank

VOC - volatile organic compound

² Surface soil grab sample from slope of canyon

³ Chromatogram does not exactly match diesel pattern, displayed heavier fuel pattern

TABLE 4-2

SUMMARY OF 2005 SITE INVESTIGATION GROUNDWATER SAMPLE RESULTS UST SITE 16144, MCB CAMP PENDLETON

				VOCs ¹ (µg/L)						
Sample Location	Sample ID	Date Sampled	TPH-d (mg/L)	cis-1,2-dichloroethene	Toluene	Xylenes	Methyl ethyl ketone	Acetone	Trihalomethanes	PAHs ¹ (μg/L)
MW3	0003-057	7/21/05	0.27	ND	0.64	0.43 J	ND	ND	ND	ND
MW4	0003-058	7/21/05	4.9	ND	0.24 J	ND	ND	ND	ND	ND
MW5	0003-059	7/21/05	5.7	0.77 J	0.37 J	ND	5.4 J	17 J	ND	ND
	0003-060 (dup)	7/21/05	6.3	0.71 J	ND	ND	ND	12 J	ND	ND
B14 ²	0003-056	7/13/05	NA	ND	ND	ND	ND	ND	ND	NA

Notes:

J - estimated value

 $\mu g/L$ - micrograms per liter

dup - duplicate

MCB - Marine Corps Base

mg/L - milligrams per liter

NA - not analyzed

ND - not detected

PAH - polynuclear aromatic hydrocarbon

TPH-d - total petroleum hydrocarbons quantified as diesel

UST - Underground Storage Tank

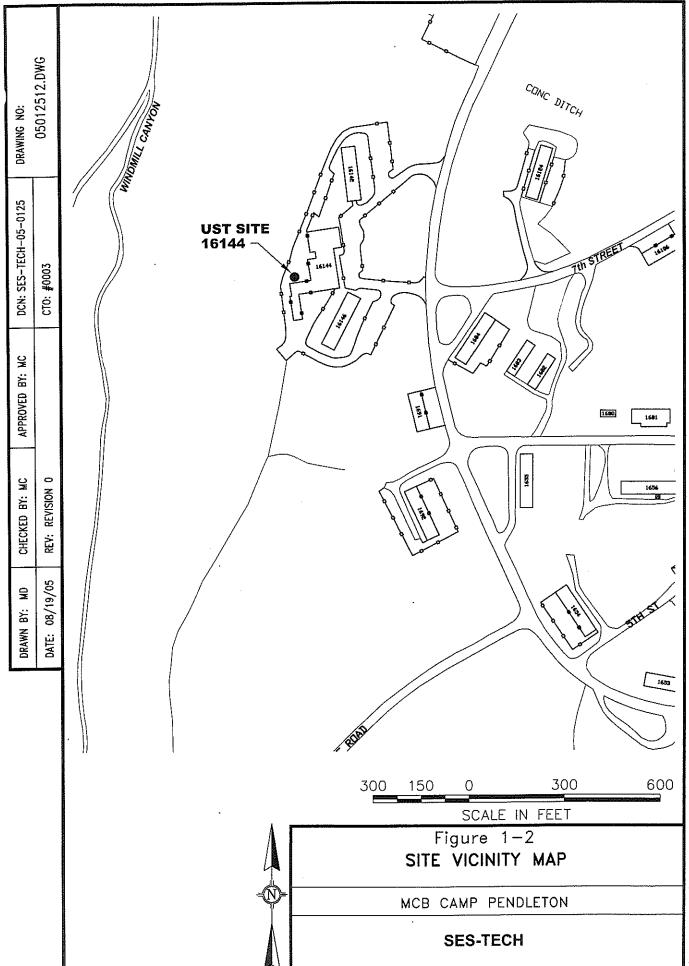
VOC - volatile organic compound

¹ All other analytes not listed were not detected

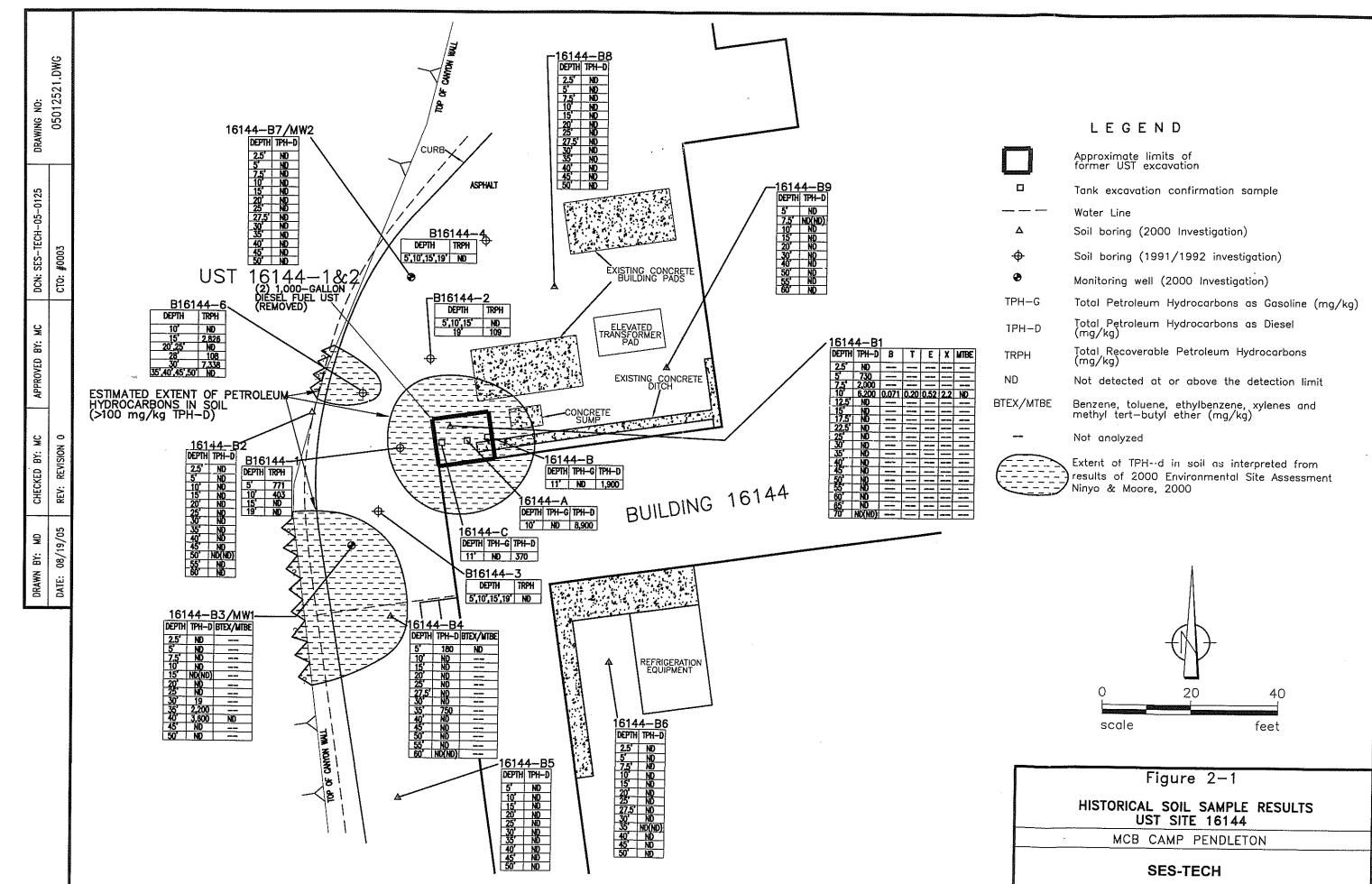
² Groundwater grab sample from boring B14

FIGURES

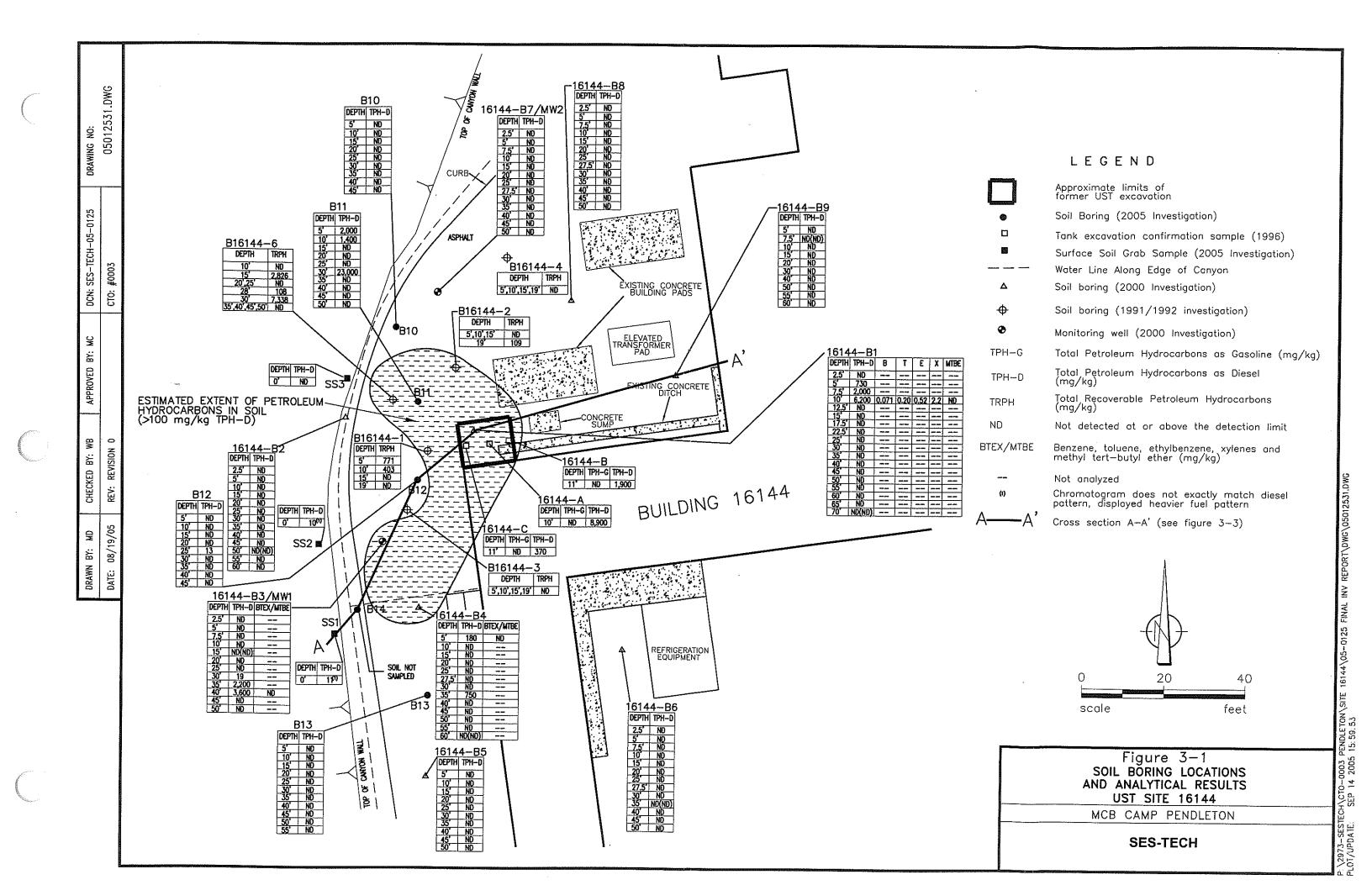
P:\Z973-SESTECH\CTO-0003 PENDLETON\SITE 16144\05-0125 FINAL INV REPORT\DWG\05012511.DWG PLOT/UPDATE: AUG 16 2005 16:09:57

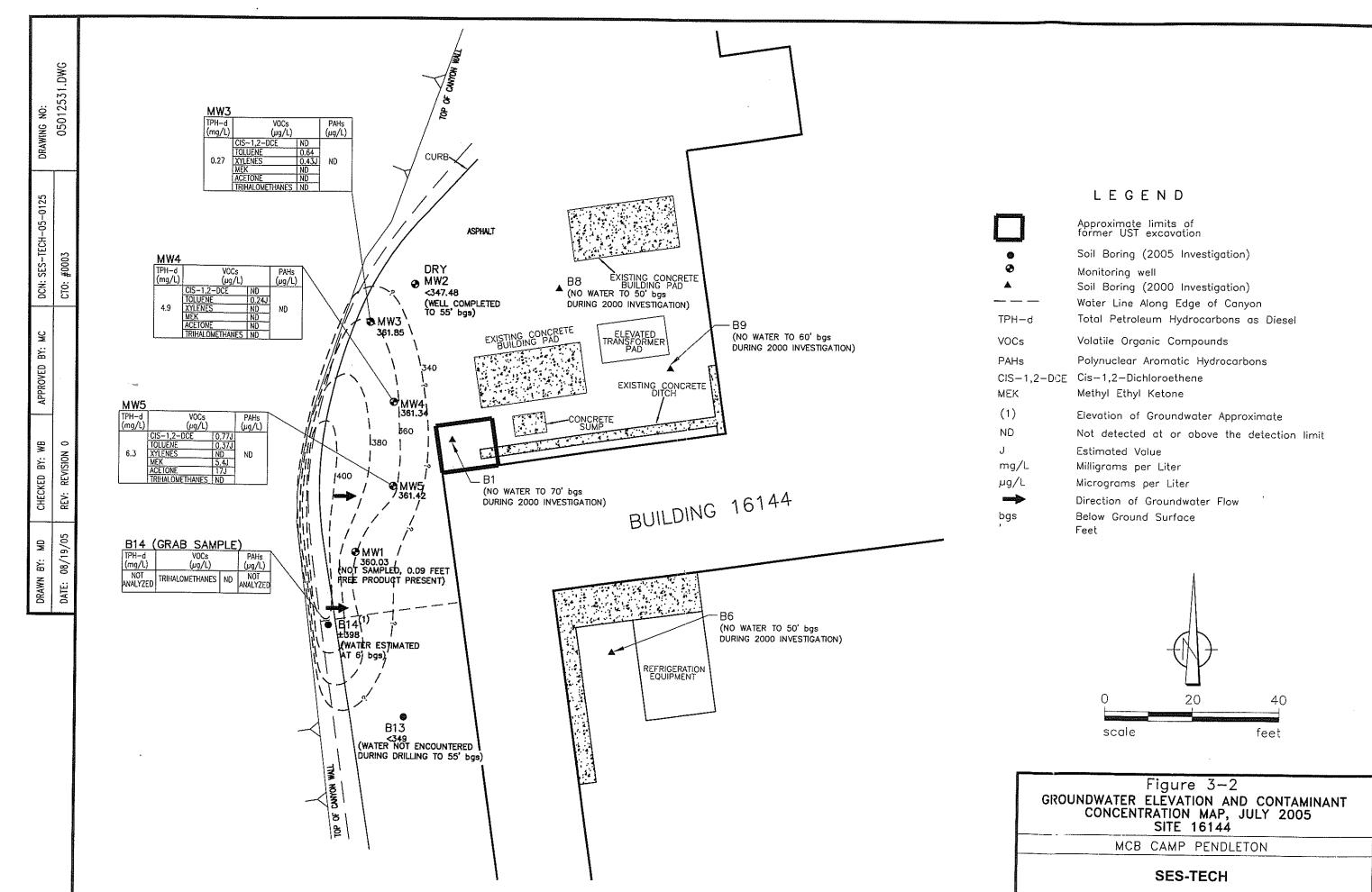


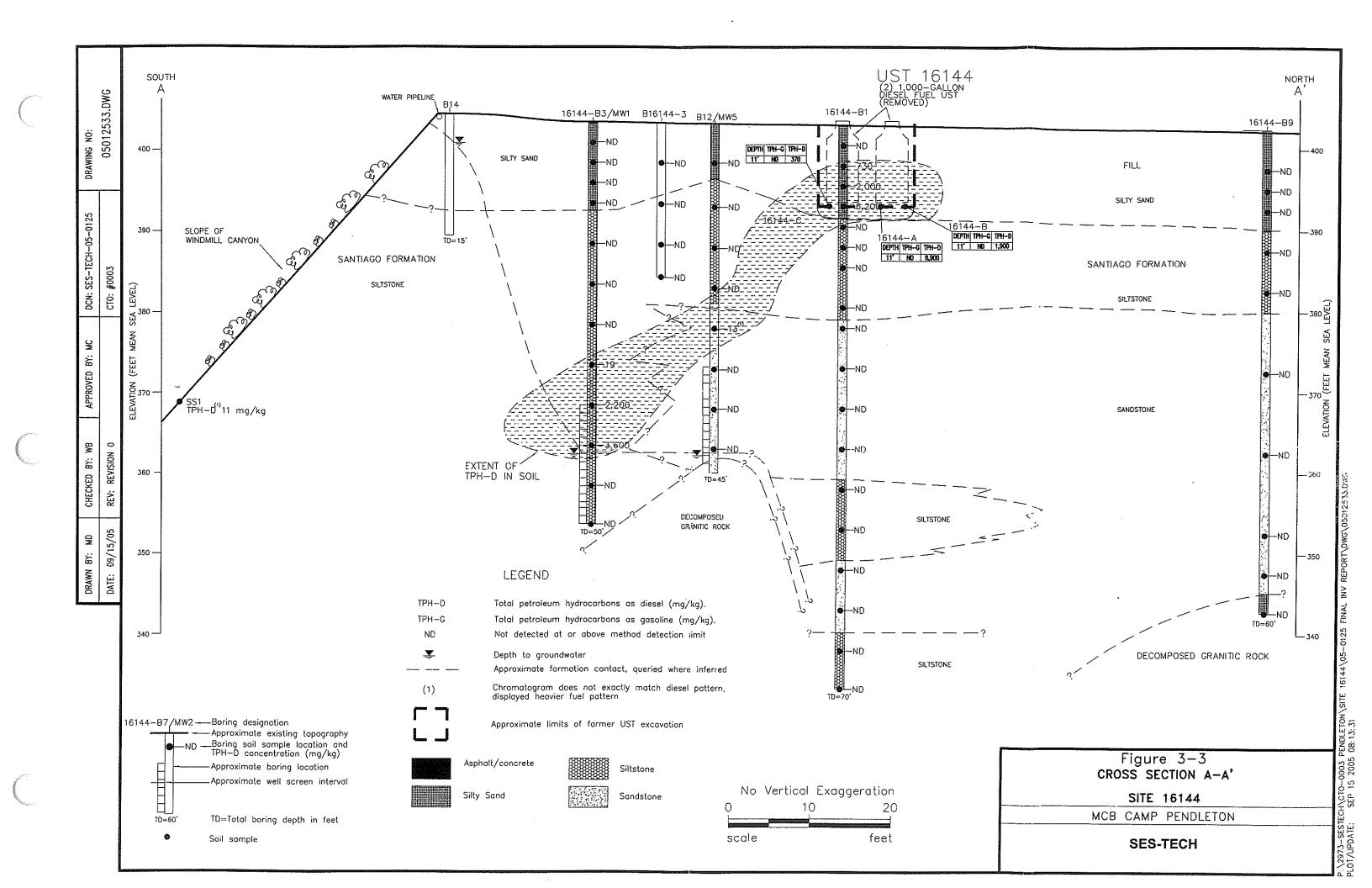
P:\2973-SESTECH\CTO-0003 PENDLETON\SITE 16144\Q5-0125 FINAL INV REPORT\DWG\Q5012512.DWG PLOT/UPDATE: AUG 23 2005 13:27:08



P:\2973-SESTECH\CTO-0003 PENDLETON\SITE 16144\05-0125 FINAL INV REPORT\DWG\05012521.DWG PLOT/UPDATE: SEP 15 2005 09:19:13







APPENDIX A

SOIL BORING PERMIT, BORING LOGS, AND WELL SAMPLING FORMS



August 26, 2005

Monitoring Well Permit Clerk
Site Assessment and Mitigation Program
County of San Diego, Department of Environmental Health
P.O. Box 129261
San Diego, CA 92112-9261

Subject:

Monitoring Well Destruction and Installation Notification, UST Site 16144,

Marine Corps Base (MCB) Camp Pendleton, California

Reference:

Permit No. LMON 103087

Well Permit Clerk:

Per your request, Tetra Tech EC is submitting the attached document in fulfillment of the conditions of monitoring well destruction and well installation permit number LMON 103087. The permit was issued on May 10, 2005 and the County was given 48 hours notice prior to commencement of the work of each phase of work. The work was conducted for the following UST Site:

Property Owner:

United States Marine Corps

Site Address:

UST Site 16144

16 Area, MCB Camp Pendleton, California 92055

Contact Person:

Mr. Chet Storrs

RCRA Division Head

From July 11 through 13, 2005, 5 borings were advanced of which three were converted to groundwater monitoring wells (MW3, MW4 and MW5). The remaining two borings (total depth 55 and 14 feet bgs) were backfilled to 1 foot bgs and the surface was completed with asphalt to match existing conditions; the following volumes and materials were used to backfill the borings and in construction of each of the wells:

Boring/ Well	Filter Pack #2/12 sand (cubic feet)	Transition Seal Bentonite chips (cu bic feet)	Bentonite Grout (cubic feet)	Concrete Competion (cubic feet)
B-10/MW3	6	1	6	1
B-11/MW4	6	1	6	1
B-12/MW5	5	1	6	1
B-13	NA	NA	15	5
B-14	NA	NA	4	.5



The attached documents include boring/monitoring wells log with well completion information, a signed and stamped Registered Geologist certification letter for the boring/monitoring well logs, and a well location map.

If you have any questions regarding this matter, please contact the undersigned.

Sincerely, Tetra Tech EC

Jeff Brenner, PG Senior Geologist JEFFREY BRENNER NO. 7134 EXP. 1-31-07

Attachments:
Copy of Permit
Location Map
Registered Geologist Certification Letter
Boring Logs

COUNTY OF SAN DIEGO .
DEPARTMENT OF
ENVIRONMENTAL
HEALTH

REG 06-20-05 14:04 ROSE 172179

1

7

141 141 428W26\$45.00 批 \$45...CO



MODIFIED

PERMIT #LMON103087 A.P.N. #101-520-14-00 EST #H05939-031

COUNTY OF SAN DIEGO DEPARTMENT OF ENVIRONMENTAL HEALTH LAND AND WATER QUALITY DIVISION MONITORING WELL PROGRAM

NG WELL AND BORING CONSTRUCTION AND DESTRUCTION PERMIT

:: AREA 16, BUILDING 16144

LESS: MCB CAMP PENDLETON, CA 92055

)R: INSTALL 3 GROUNDWATER MONITORING WELLS & 2 BORINGS

PERMIT APPROVAL DATE: MAY 10, 2005

PERMIT EXPIRES ON: SPETEMBER 7, 2005

RESPONSIBLE PARTY: US NAVY/MARINE CORPS

PERMIT CONDITIONS:

- 1. The revised well construction proposed in fax dated 5-9-05 by TetraTech FW is approved.
- 2. Contact the Regional Water Quality Control Board for their comments and concerns regarding the proposed activities.
- 3. Wells must have a minimum 3-foot concrete surface seal. The surface seal shall consist of concrete able to withstand the maximum anticipated load without cracking or deteriorating. The concrete should meet Class A specifications of a minimum 4000-pound compressive strength.
- 4. All borings must be sealed from the bottom of the boring to the ground surface with an approved sealing material as specified in California Well Standards Bulletin 74:90, Part III, Section 19,D Drill cuttings are not an acceptable fill material.
- 5. All water and soil resulting from the activities covered by this permit must be managed, stored and disposed of as specified in the SAM Manual in Section 5, II, E- 4. (http://www.sdcounty.ca.gov/deh/lwq/sam/manual_guidelines.html). In addition, drill cuttings must be properly handled and disposed in compliance with the Stormwater Best Management Practices of the local jurisdiction.
- 6. Within 60 days of completing work, submit a well construction report, including all well and/or boring logs and laboratory data to the Well Permit Desk. This report must include all items required by the SAM Manual, Section 5, Pages 6 & 7.
- 7. This office must be given 48-hour notice of any drilling activity on this site and advanced notification of drilling cancellation. Please contact the Well Permit Desk at 338-2339.

NOTE: This permit does not constitute approval of a work plan as defined in Section 2722 of Article 11 of C.C.R., Title 23. Work plans are required for all unauthorized release investigations in San Diego County.

APPROVED BY: CAROL SPANGENBERG DATE: 06/20/2005

NOTIFIED: 6/20/15 67 DEH:SAM-9075 (3/05)

WELL INSTALLATION

Statement of Certification

I, Jeffrey Brenner, certify that, to the best of my knowledge, the data and information presented in the boring and well completion logs listed below are accurate and complete. Field activities and documentation were performed in accordance with accepted practices and procedures.

Jeffrey Brenner, CA RG # 7134

PERMIT NO. LMON 103087

MCB Camp Pendleton, Area 17, UST Site 16144

- Monitoring Well MW3
- Monitoring Well MW4
- Monitoring Well MW5



LOG OF BORING B-10/MW-3

(Sheet 1 of 3)

6 to 13 ft. POORLY GRADED SAND WITH SILT: Light Grey to Tan, 90% Fine to Medium Rounded Sand, 10% Non-Plastic Fines, No Odor, Dry, Poorly Graded

13 to 22 ft. SILT WITH SAND: Greenish-Grey, 75% Non-Plastic Fines, 15% Fine Sand, 10% Plastic Fines,

No Odor, Moist, Well Indurated

							1	(2,1221 : 31 0)			
-Client: NF	ECSW						Drilling Company: West Hazmat				
Project: U	ST Site 16144					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Drilling Method: Hollow-Stem Auger				
Project Nu	t Number: 2973							pling Method: Split-Spoon			
Location: I	ation: Marine Corps Base Camp Pendleton							hole Diameter: 8 in.			
Geologist:	J. Brenner						North	ning: 2,053,273.27 Feet (NAD 83)			
Date Starte	ed: July 12, 200	5					Easti	ng: 6,233,806.31 Feet (NAD 83)			
Date Comp	oleted: July 13,	2005		_		,,,,,,,	Grou	nd Surface Elevation: NA			
Total Depth: 50.0 Feet bgs							Top of Casing Elevation: 402.53 Feet AMSL (NAVD 88)				
(ff. bgs) Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	ਜੂ PID ਕੋ Readings	SOSN	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)		
	Flushed Mounted Well Vault Concrete 4"Schedule 40 PVC Riser			0003-046	0.6	SM		0 to 0.2 ft. ASPHALT PAVEMENT 0.2 to 6 ft. SILTY SAND (Artificial Fill): Brown, 75% Fine to Medium Subrounded Sand, 25% Non-Plastic Fines, Trace Gravel, Slightly Moist			

SP-SM

ML

0.2

2.2

0003-047

0003-048

Notes:

Reviewed By: J. Brenner, P.G. AMSL = above mean sea level bgs = below ground surface NA = not applicable

Bentonite Grout

50

50

NAD = North American Datum

NAVD = North American Vertical Datum

PVC = polyvinyl chloride

TIFW WELL CONSTRUTION UST 16144.GPJ FSTRW SA.GDT 8/25/05

LOG OF BORING B-10/MW-3

(Sheet 2 of 3)

29 to 33 ft. SILT: Tan to Grey, 90% Non-Plastic Fines, 10% Fine Sand, No Odor, Moist, Well Indurated, Poorly

33 to 47 ft. POORLY GRADED SAND: Tan to Grey, 95% Fine Rounded Sand, 5% Non-Plastic Fines, Moist, Loose

							1	(Officer 2 of 5)				
Client: NF	ECSW						Drilli	Drilling Company: West Hazmat				
Project: U	ST Site 16144							ng Method: Hollow-Stem Auger				
Project Nu	mber: 2973							pling Method: Split-Spoon	,			
Location: I	Marine Corps Ba	ase Cam	ıp Pe	endleton				hole Diameter: 8 in.				
Geologist:	eologist: J. Brenner							ning: 2,053,273.27 Feet (NAD 83)				
Date Starte	Date Started: July 12, 2005							ng: 6,233,806.31 Feet (NAD 83)				
Date Comp	Date Completed: July 13, 2005							nd Surface Elevation: NA				
Total Depth	Total Depth: 50.0 Feet bgs						Тор	Top of Casing Elevation: 402.53 Feet AMSL (NAVD 88)				
Depth (ft. bgs) Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	ੂ PID ਝੌ Readings	SOSN	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)			
		50		0003-049	0	ML		22 to 29 ft. POORLY GRADED SAND: Tan to Grey, Moist, 95% Fine to Coarse, Round to Subrounded Sand, 5% Non-Plastic Fines, No Odor, Poorly Graded, Well]			
25		35 50		0003-050	0			Indurated				

SP

ML

SP

Graded

Notes:

35-

Reviewed By: J. Brenner, P.G. AMSL = above mean sea level bgs = below ground surface NA = not applicable

Bentonite Seal

4" Schedule 40 PVC Factory-Slotted Screen 0.010"

Slot-Size

Filter Pack #2/12 Sand 35 50

50

0003-051

0003-052

3.3

1.6

NAD = North American Datum NAVD = North American Vertical Datum

PVC = polyvinyl chloride

TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

LOG OF BORING B-10/MW-3

								(Sheet 3 of 3)		
Client: NF	ECSW				****		Drilli	ng Company: West Hazmat		
Project: US	ST Site 16144				4		Drilling Method: Hollow-Stem Auger			
Project Nun	nber: 2973						Sam	pling Method: Split-Spoon		
Location: N	Marine Corps B	ase Can	ъ Ре	ndleton	-		Bore	hole Diameter: 8 in.		
Geologist:	J. Brenner						Norti	ning: 2,053,273.27 Feet (NAD 83)		
Date Starte	d: July 12, 200)5					Easti	ing: 6,233,806.31 Feet (NAD 83)		
Date Comp	leted: July 13,	2005	_				- 	ind Surface Elevation: NA		
Total Depth	: 50.0 Feet bg:	s					Тор	of Casing Elevation: 402.53 Feet AMSL (NAVD 88)		
Depth (ff. bgs) Well/Boring Completion	Well/Boring Remarks	9 Blow Counts	Samples	Sample Number 0003-053	od PID ∞ de Readings	nscs	Graphic Log	LITHOLOGIC DESCRIPTION		
AM-	riewed By: J. Br SL = above mea = below ground	an sea lev	.G.	0003-054	0.5	DG	6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	47 to 50 ft. DECOMPOSED GRANITE: No Sample Collected. Difficult Drilling Boring teminated at total depth of 50 feet bgs.		

LOG OF BORING B-11/MW-4

(Sheet 1 of 3)

_ Client: NFECSW	Drilling Company: West Hazmat					
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger					
Project Number: 2973	Sampling Method: Split-Spoon					
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.					
Geologist: J. Brenner	Northing: 2,053,245.25 Feet (NAD 83)					
Date Started: July 11, 2005	Easting: 6,233,808.91 Feet (NAD 83)					
Date Completed: July 12, 2005	Ground Surface Elevation: NA					
Total Depth: 55.0 Feet bgs	Top of Casing Elevation: 402.76 Feet AMSL (NAVD 88)					
ص ا	9					

Depth (ft. bgs)	Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	d PID W Readings		Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
- - 5—		Flushed Mounted Well Vault Concrete 4"Schedule 40 PVC Riser			0003-009	7.2	SM		0 to 0.2 ft. ASPHALT PAVEMENT 0.2 to 7 ft. SILTY SAND (Artificial Fill): Brown to Grey, 75% Sand, 25% Non-Plastic Fines, Strong Hydrocarbon Odor, Moist, Loose, Soft, Poorly Graded	
- 10		■Bentonite Grout	35 45 50		0003-010	130	SM		7 to 12.5 ft. SILTY SAND: Grey to Greenish-Grey, 85% Sand, 10% Non-Plastic Fines, 5% Plastic Fines, Strong Hydrocarbon Odor, Moist, Loose to Moderately Dense, Moderately Stiff, Moderately to Poorly Indurated, Poorly Graded	-
15—			30 50		0003-011	1.7	ML		12.5 to 27 ft. SANDY SILT: Greenish-Grey, 70% Non-Plastic Fines, 20% Sand, 10% Plastic Fines, Strong Hydrocarbon Odor, Dry, Very Dense, Stiff, Very Well Indurated	

TIFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

Notes: Reviewed By: J. Brenner, P.G. AMSL = above mean sea level bgs = below ground surface

NA = not applicable NAD = North American Datum

NAVD = North American Vertical Datum

LOG OF BORING B-11/MW-4

(Sheet 2 of 3)

- Client: NFECSW										
1 m				Drilling Company: West Hazmat						
Project: UST Site 16	144			Drilling Method: Hollow-Stem Auger						
Project Number: 297	73			Sampling Method: Split-Spoon						
Location: Marine Co	rps Base Carr	ıp Pendleton		Borehole Diameter: 8 in.						
Geologist: J. Brenne	Г			Northing: 2,053,245.25 Feet (NAD 83)						
Date Started: July 1	1, 2005			Easting: 6,233,808.91 Feet (NAD 83)						
Date Completed: Jul	y 12, 2005		, , , , , ,	Ground Surface Elevation: NA						
Total Depth: 55.0 Fe	et bgs			Top of Casing Elevation: 402.76 Feet AMSL (NAVD 88)						
Depth (ff. bgs) Well/Boring Completion	oring Molarks Stuno O	Samples Sample Number	edings Readings	LITHOLOGIC DESCRIPTION	Elevation (ft.)					
30— Bentoni Seal 4" Sche 40 PVC Factory Screen 0.010" Slot-Siz 35— Filter Pa #2/12 Si	50 dule -Slotted e 50	0003-013	0 Si	27 to 29 ft. SILTY SAND: Tan to Grey, 75% Fine Sand, 25% Non-Plastic Fines, No Odor, Moist, Loose, Soft, Well Indurated 29 to 30 ft. 6" to 1' thick Dark Lense of Clay like material with gold colored flakes, Saturated with Hydrocarbons at Approximately 29' to 30'. 30 to 45 ft. SILTY SAND: Tan to Grey, 75% Fine Sand, 25% Non-Plastic Fines, No Odor, Moist, Loose, Soft, Well Indurated						

LOG OF BORING **B-11/MW-4**

(Sheet 3 of 3)

Client: NFECSW	Drilling Company: West Hazmat						
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger Sampling Method: Split-Spoon						
Project Number: 2973							
Location: Marine Corps Base Camp Pendleton	Borehole Diaméter: 8 in.						
Geologist: J. Brenner	Northing: 2,053,245.25 Feet (NAD 83)						
Date Started: July 11, 2005	Easting: 6,233,808.91 Feet (NAD 83)						
Date Completed: July 12, 2005	Ground Surface Elevation: NA						
Total Depth: 55.0 Feet bgs	Top of Casing Elevation: 402.76 Feet AMSL (NAVD 88)						

Well/Boring Completion Graphic Log Elevation (ft.) Sample Number **USCS** Well/Boring LITHOLOGIC DESCRIPTION Remarks PPM 0003-016 SM 45-50 0003-17 0.1 45 to 51 ft. SILT WITH SAND: Brown to Greenish-Brown, 0003-18 (Dup) 70% Non-Plastic Fines, 20% Sand, 10% Plastic Fines, Dry, Moderately Dense, Moderately Stiff, Poorly Graded ML 50 50 0003-019 0 51 to 55 ft. DECOMPOSED GRANITE: Difficult Drilling DG Slough Boring Boring teminated at total depth of 55 feet bgs. terminated at total depth of 55 feet bgs.

Notes:

Reviewed By: J. Brenner, P.G. AMSL = above mean sea level bgs = below ground surface NA = not applicable

NAD = North American Datum

NAVD = North American Vertical Datum

PVC = polyvinyl chloride

TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

LOG OF BORING B-12/MW-5

							(Sheet 1 of 3)					
- Client: NFECS	SW			,		***************************************	Drilling Company: West Hazmat					
Project: UST 8	Site 16144						Drilling Method: Hollow-Stem Auger					
Project Numbe	r: 2973						Sampling Method: Split-Spoon					
Location: Mari	ne Corps Ba	se Cam	p Pen	dleton			Bore	hole Diameter: 8 in.				
Geologist: J. B	renner						North	ning: 2,053,231.84 Feet (NAD 83)				
Date Started: 、	July 12, 200	5					Easti	ng: 6,233,808.16 Feet (NAD 83)				
Date Complete	d: July 13, 2	2005					Grou	nd Surface Elevation: NA				
Total Depth: 4	5.0 Feet bgs	3					Тор	of Casing Elevation: 403.29 Feet AMSL (NAVD 88)				
Depth (ft. bgs) Well/Boring Completion	Vell/Boring Remarks	Blow Counts	Samples	Sample Number	ਰ 공 Readings	sosn	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)			
5	entonite irout			0003-023 0003-024	0	SM		0 to 0.2 ft. ASPHALT PAVEMENT 0.2 to 6 ft. SILTY SAND (Artificial Fill): Brown to Greenish-Grey, 85% Non-Plastic Fines, 15% Sand, Slight Hydrocarbon Odor, Moist, Loose, Soft, Poorly Graded 6 to 22 ft. SILT WITH SAND: Grey to Greenish-Grey, 85% Non-Plastic Fines, 15% Sand, Slight Hydrocarbon Odor, Dry, Loose, Soft, Poorly Graded Below 14 feet bgs material becomes hard, dense with medium plasticity. No Odor (Sample can be rolled).				
AMSL : bgs = b NA = n NAD =	ved By: J. Br = above mea pelow ground ot applicable North Americ = North Amer	n sea lev surface can Datur	rel m	, PVC =	l <u>l</u> polyviny	d chloric	ie					

LOG OF BORING B-12/MW-5

(Sheet 2 of 3)

	Client: NFE	CSW						Drillir	g Company: West Hazmat				
	Project: US	T Site 16144						Drillin	ng Method: Hollow-Stem Auger				
	Project Num	nber: 2973						Sampling Method: Split-Spoon					
	Location: M	larine Corps Ba	se Cam	ір Ре	endleton			Borel	nole Diameter: 8 in.				
	Geologist: 、	J. Brenner						North	ing: 2,053,231.84 Feet (NAD 83)				
	Date Started	d: July 12, 200	5					Easti	ng: 6,233,808.16 Feet (NAD 83)				
	Date Compl	eted: July 13,	2005					Groui	nd Surface Elevation: NA				
	Total Depth:	: 45.0 Feet bgs		,				Торс	f Casing Elevation: 403.29 Feet AMSL (NAVD 88)				
	Depth (ft. bgs) Well/Boring Completion	Well/Boring Remarks	Blow Counts	Samples	Sample Number	ਜੂ PID ਝੌਂ Readings	SOSA	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)			
			35		0003-026	0	ML			_			
	25-	■ Bentonite Seal	50		0003-027	0.7			22 to 43 ft. SILTY SAND: Tan to Grey, 80% Sand, 20% Non-Plastic Fines, No Odor, Moist, Loose, Soft				
DT 8/25/05	35-	40 PVC Factory-Slotte Screen 0.010" Slot-Size			0003-028		SM						
J FSTRW_SA.GDT 8/25/05	33	Filter Pack #2/12 Sand	5 U		0003-02 9	0							

TTFW WELL CONSTRUTION UST 16144,GPJ

Notes: Reviewed By: J. Brenner P.G. AMSL = above mean sea level

bgs = below ground surface NA = not applicable NAD = North American Datum

NAVD = North American Vertical Datum

LOG OF BORING B-12/MW-5

		(Sheet 3 of 3)					
- Client: NFECSW		Drilling Company: West Hazmat					
Project: UST Site 16144		Drilling Method: Hollow-Stem Auger					
Project Number: 2973		Sampling Method: Split-Spoon					
Location: Marine Corps Base Camp Pend	lleton	Borehole Diameter: 8 in.					
Geologist: J. Brenner		Northing: 2,053,231.84 Feet (NAD 83)					
Date Started: July 12, 2005		Easting: 6,233,808.16 Feet (NAD 83)					
Date Completed: July 13, 2005		Ground Surface Elevation: NA					
Total Depth: 45.0 Feet bgs		Top of Casing Elevation: 403.29 Feet AMSL (NAVD 88)					
(ft. bgs) Well/Boring Completion Samples Samples	Sample Number BID WReadings	ાં LITHOLOGIC DESCRIPTION					
60 60	0003-030 0 SM						
45 Slough 50	0003-031 0 DG	43 to 45 ft. DECOMPOSED GRANITE Y C S Difficult Drilling					
45		Boring terminated at total depth of 45 feet bgs.					
50-							
55							

LOG OF BORING **B-13**

(Sheet 1 of 3)

								(Sheet 1 of 3)			
- Client: NFECSV	V		•••				Drillia	ng Company: West Hazmat			
Project: UST Sit	te 16144						Drilling Method: Hollow-Stem Auger				
Project Number:	2973						Sampling Method: Split-Spoon				
Location: Marine	e Corps Ba	ase Cam	р Ре	ndleton			Bore	hole Diameter: 8 in.			
Geologist: J. Bre	enner						Norti	ning: 2,053,174.48 Feet (NAD 83)			
Date Started: Ju	ıly 12, 200	5					Easti	ing: 6,233,808.48 Feet (NAD 83)			
Date Completed:	July 13, 2	2005					Grou	nd Surface Elevation: NA			
Total Depth: 55.	0 Feet bgs	3	•				Top	of Casing Elevation: 404.43 Feet AMSL (NAVD 88)			
(ff. t Well/E Comp	ell/Boring Remarks	Blow Counts	Samples	Sample Number	The PID Readings	SOSN	Graphic Log	LITHOLOGIC DESCRIPTION			
5—————————————————————————————————————	ntonite out Backfill	25 25 50		0003-035 0003-036	0.1	SM		0 to 0.2 ft. ASPHALT PAVEMENT 0.2 to 7 ft. SILTY SAND (Artificial Fill): Greenish-Grey to Brown, 80% Non-Plastic Fines, 20% Sand, No Odor, Moist, Poorly Graded 7 to 15 ft. SANDY SILT: Greenish-Grey, Dry, 60% Non-Plastic Fines, 40% Fine Rounded Sand, No Odor, Loose, Poorly Graded			
						ML		15 to 30 ft. SANDY SILT: Greenish -Grey, 60% Non-Plastic Fines, 30% Fine Rounded Sand, 10% Plastic Fines, Dry, Well Indurated			

LOG OF BORING B-13

(Sheet 2 of 3)

Client: NFECSW							
					Drill	ing Company: West Hazmat	•
Project: UST Site 1614	4				Drill	ing Method: Hollow-Stem Auger	
Project Number: 2973					Sam	npling Method: Split-Spoon	
Location: Marine Corps	Base Can	p Pendleton			Bore	ehole Diameter: 8 in.	
Geologist: J. Brenner	***************************************				Nort	hing: 2,053,174.48 Feet (NAD 83)	
Date Started: July 12, 2					East	ting: 6,233,808.48 Feet (NAD 83)	
Date Completed: July 1	3, 2005				Grou	und Surface Elevation: NA	
Total Depth: 55.0 Feet	ogs				Тор	of Casing Elevation: 404.43 Feet AMSL (NAVD 88)	-
(ff. bgs) Well/Borin Completion Remark	Blow Counts	Samples Sample	I PPN	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
25-	100	0003	040 0	ML		30 to 40 ft. SILTY SAND: Tan to Grey, 60% Fine Rounded Sand, 40% Non-Plastic Fines, No Odor, Moist, Loose, Poorly Graded	

LOG OF BORING B-13

(Sheet 3 of 3)

. Client: NFECSW	Drilling Company: West Hazmat			
Project: UST Site 16144	Drilling Method: Hollow-Stem Auger			
Project Number: 2973	Sampling Method: Split-Spoon			
Location: Marine Corps Base Camp Pendleton	Borehole Diameter: 8 in.			
Geologist: J. Brenner	Northing: 2,053,174.48 Feet (NAD 83)			
Date Started: July 12, 2005	Easting: 6,233,808.48 Feet (NAD 83)			
Date Completed: July 13, 2005	Ground Surface Elevation: NA			
Total Depth: 55.0 Feet bgs	Top of Casing Elevation: 404.43 Feet AMSL (NAVD 88)			

PID Readings Graphic Log Elevation (ft.) **USCS** Well/Boring LITHOLOGIC DESCRIPTION Remarks PPM 0003-042 40 to 53 ft. SILTY SAND: Brown to Grey, 60% Fine to Medium Rounded Sand, 30% Non-Plastic Fines, 10% Plastic Fines, Dry, Poorly Graded Well Indurated Below 40 feet bgs. Very Well Indurated Below 50 feet bgs. 45 70 0003-043 0 SM 70 0003-044 53 to 55 ft. DECOMPOSED GRANITE DG 60 0003-045 Boring terminated at total depth of 55 feet bgs.

Notes

TTFW WELL CONSTRUTION UST 16144.GPJ FSTRW_SA.GDT 8/25/05

Reviewed By: J. Brenner P.G. AMSL = above mean sea level bgs = below ground surface NA = not applicable

NAD = North American Datum

NAVD = North American Vertical Datum

LOG OF BORING

(Sheet 1 of 1)

						(Sheet 1 of 1)	
Client: NFECSW					Drillir	ng Company: West Hazmat	-
Project: UST Site 16144					1	ng Method: Hollow-Stem Auger	-
Project Number: 2973						oling Method: NA	
Location: Marine Corps B	ase Camp P	endleton			Borei	nole Diameter: 8 in.	
Geologist: J. Brenner					North	ing: 2,053,194.75 Feet (NAD 83)	
Date Started: July 12, 200)5		***		Easti	ng: 6,233,800.39 Feet (NAD 83)	
Date Completed: July 13,	2005				Groui	nd Surface Elevation: NA	
Total Depth: 14.0 Feet bg	s				Торс	of Casing Elevation: 403.95 Feet AMSL (NAVD 88)	
Oppth (ff. bgs)	Blow Counts Samples	Sample Number	ਰੂ PID ਝ Readings	nscs	Graphic Log	LITHOLOGIC DESCRIPTION	
Asphalt Bentonite Grout Backfill				SM		O to 0.2 ft. ASPHALT PAVEMENT 0.2 to 14 ft. SILTY SAND (Artificial Fill): Brown to Grey, 75% Sand, 25% Non-Plastic Fines, Moist, Loose, Soft, Poorly Graded	
15—		,					
Notes: Reviewed By: J. B AMSL = above me bgs = below ground NA = not applicable	an sea level i surface	PVC = p	olyviny	l chlorid	le		



FIELD WATER LEVEL MEASUREMENTS

Date: 7/21/05	Project Name:	UST SITE /6144
Personnel: Tania Turpyn - Koasla	Project OFS:	2973.0040
Wendy Bryant	Meaurement Device:	Solinst
Weather: Sunny, hot	Comments	

Time	Well ID	Depth to Water from Measuring Point (feet AMSL)	Depth to Sediment from Measuring Point (feet AMSL)	Measuring Point / Comments
-	MWI	DTP = 42.36 DTW=42.95	NM	.09 PSH
_	MWZ	DRY	59.12	
_	MW3	40.68	450	-
~	MWY	41.42	44.96 44.38	
	MWS	41.87	44.38	
				,
,				
			-	
:				

LOW-FLOW PURGING AND SAMPLING DATA SHEET

		<u> </u>	<u>B</u>		-	Sample ID:	0003-	OS7 T	i Bladder Pump ime: [042.
Reference: Top	of Casi	ng	Before	After	Tota	al Volume Pı	urged (mL):	2000	2
Depth to Water Depth of Well (fl Depth to Top of Screen Length (ft) Pump depth (ft) Pump Rate Sample Pump F System Volume	tt) Screen (ft)		40.58 45.00 35.00 10.00 44.00 80 mulm 585 mu		2.4mL/ft = tı	length of tu	e per foot bing in feet	(1/8"ID)	ıme
Time	рН	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Temp. (ºC)	ORP (mV)	Turbidity (NTU)	Depth to Water (ft)	Cum. Volume (mL)	Comments
716									Duncon
	. ସହ	1.71	5.6	25.9	32	7.70	40.74	800	lear alor
1029 6.	.80	1.69	5.13	25,4	44	8.4	4D.78	1040	(1 ' 4
1032 6.	.78	1.66	4.28	25,4	51	12.2	40.79	1280	14 10
1035 6	,79	1.67	400	25.6	57	10.9	40.79	1520	" "
1038 6	.79	166	3.98	26.2	60	16.0	40.79	1760	11 (4
	,8O	167	3.91	26.5	66	[0.0]	40.79	2000	il be
			-						
Stability: ± 0.	.2 units	± 3-5%	± 0.2 mg/L	± 0.3 %	± 20 mV	± 10%			
Hach Fe ²⁺			numn uniess o	thenwise note	.d				

LOW-FLOW PURGING AND SAMPLING DATA SHEET

Proje	ect Number: Date:				•		QED Samp	ole Pro Mini	Bladder Pump ime: 1135
Reference:	Top of Casi	ng	Before	After	Tota	al Volume Pu	urged (mL):	1920	
Depth to W Depth of W Depth to To Screen Ler Pump depti Pump Rate Sample Pu System Vo	rell (ft) op of Screen ogth (ft) h (ft) mp Rate		41.30 44.96 40.00 44.00 90 mu 565	- - - - Imin	2.4mL/ft = tı	length of tu	e per foot bing in feet	(1/8"ID)	ıme
Time	рН	Conductivity (μmhos)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Turbidity (NTU)	Depth to Water (ft)	Cum. Volume (mL)	Comments
., <u>10</u>					,				pumpon
طلا	6.53	1.84	3,88	25.8	109	21.8	41.44	480	clow, adar
1119	6.48	1.80	3.22	249	100	21.7	41.45	720	••
1122	6.40	1.78	2.02	24.8	93	19.1	41.47	960	16 5
1125	6.38	18#	1.81	24.9	89	20.7	41.48	1200	11 %
1128	6.37	1.78	1.61	24.8	86	17.7	41.50	1440	11 (/
1131	6.37	1.78	1.49	24.7	<i>B</i> 3	15.9	41.52	1680	ازر دو
1134	6.37	1.79	1.45	24,7	81	15.6	41.54	920	n h
Stability:	± 0.2 units	± 3-5%	± 0.2 mg/L	± 0.3 %	± 20 mV	± 10%			
Hach Fe ²⁺	ןטק	N N							
Samples w	ere collected	d directly from	pump unless of	otherwise note	ed.				

LOW-FLOW PURGING AND SAMPLING DATA SHEET

Proje	ject Name: _ ct Number: _ Date: _ Ingineer(s): _	2973 7121	te 1614 3.000; 105 NIS		E	ell Number: _ Equipment: _0 Sample ID: _0 Contractor: _	QED Sampl	e Pro Mini E	Bladder F me: <i>125</i>	iump	
Reference:	Top of Casin	g	Before	After	Total	l Volume Pur	ged (mL): _	1950			
Depth to Wa Depth of We Depth to To Screen Len Pump depth Pump Rate Sample Pul System Vol	ell (ft) p of Screen gth (ft) n (ft) mp Rate	12165	4173 44.88 34.00 10.00 43.60 75 mL 75 mL 588	43.50 min	2.4mL/ft = tu	length of tub	per foot(ing in feet	1/8"ID)	me		
Time	рН	Conductivity (μmhos)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Turbidity (NTU)	Depth to Water (ft)	Cum. Volume (mL)	Comi	ments	
230	230 punpon										
185	285 6.61 3.08 2.52 27.7 -72 144.0 41.95 375 char Hydrocal 25										
1220	6.53	3,45	1.30	26.9	-84	1620		600	1.	``	-
1241	6.50	3.33	0.80	26.7	-92	1500	42.02	825	• • •	٦,	-
1243	6.52	3.28	0.59	26.6	-94	161.0	42.03	1050	**	٠,	1
1246	6.52	3.16	0.45	26.6	-98	160.0	42.05	1275	и	۲.	
1249	6.54	3.06	0.33	26.5	-103	159.0	42.07	1500	71	~	<u> </u>
1252		2.98	0.26	26.6	-109	150.0	4z-01	1725		7	
1255	6.60	2.80	0.19	26.6	-112	145.0	42.11	1950	n	и	_
			mph	T .							
1256	un		70(1500								
											_
Stability:	± 0.2 units	± 3-5%	± 0.2 mg/L	± 0.3 %	± 20 mV	± 10%					
Hach Fe ²	N	/A	n pump unless		ted.						

APPENDIX B NON-HAZARDOUS WASTE MANIFEST

NON-HAZARDOUS WASTE MANIFEST (Form designed for use on elite (12 pitch) typewriter) **NON-HAZARDOUS** 1. Generator's US EPA ID No. 2. Page 1 **WASTE MANIFEST** 3, Generator's Nationand Mailing Address Tetra Tech FW, Inc. 1230 Columbia Street Suite 500 San Diego, CA 92101 Attn: Nate Delegion 4. Generator's Phone (' () 5. Transporter 1 Company Name General Envilonmental Mignet Inc. 6. US EPA ID Number |C A D D B B B B B B B B A. State Transporter's ID 860 JZ6 1011 B. Transporter 1 Phone 7. Transporter 2 Company Name US EPA ID Number C. State Transporter's ID D. Transporter 2 Phone 9. Designated Facility Name and Site Address DK Environmental 10. US EPA ID Number E. State Facility's ID 3650 Bast 26th Street F. Facility's Phone Vernon, CA 90023 CATOBOO33681 121-268-5056 11. WASTE DESCRIPTION 12. Containent 13. Total Quantity 14. Unit Wt./Vol. No. Туре *Non hazardous liquid (Well Water) IST. D M į, GENER Mon hazardous solid (Soit) DH ŗ, 2.500 C. A 0 Ē G. Additional Descriptions for Materials Listed Above prove 14340901-24 H. Handling Codes for Wastes Listed Above 11b) 22x55q-Soil-Approval#340901-23 UST SITE 16144 15. Special Handling Instructions and Additional Information 1011 (G.E.M.) PO#056289 16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations. Date Printed/Typed Name Signature Month Day 1) " Carrier 1 17. Transporter 1 Acknowledgement of Receipt of Materials Dale Printed/Typed Name Signature Day Year Month 505€ 18. Transporter 2 Acknowledgement of Receipt of Materials Date Printed/Typed Name Signature Day Year 19. Discrepancy Indication Space 20. Facility Owner or Operator, Certification of receipt of the waste materials covered by this manifest, except as noted in item 19. Date

Signature

Day

Year

Month

Printed/Typed Name

APPENDIX C

LABORATORY RESULTS AND CHAIN-OF-CUSTODY FORMS

NUMBER 12422

L CTRATECH 1230 Coimble Street, Suite 300 Sen Dego, CA 92101 (619) 234-1696

CHAIN-OF-CUSTODY RECORD

PROJECT NAME		PURCHASE ORDER NO.	R NO.			-	Z	AI VSE	ANAL VSES BEOLIBED	2ED	LABORATORY NAME	<u></u>			
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White - Laboratory, Pink - Laboratory, Canary - Project File, Manila - Data Management

NUMBER 12423

TETRATECH 1230 Columbia Street, Suite 500 Sua Diego, CA 92101 (619) 234-1696

CHAIN-OF-CUSTODY RECORD

PROJECT NAME		PURCHASE ORDER NO.	ER NO.			_	NALYSE	ANALYSES REOTHRED	LABORATORY NAME			
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0003-025	7-11-15	1435	+	**************************************		×					\ \frac{\fir}{\fin}}}}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}}}}}}}}}{\frac	3
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White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

NUMBER 12424

1230 Columbia Street, Salte 500 San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REOURED	LABORATORY NAME		
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PROJECT LOCATION	ع.	PROJECT NO.	ا المسم			Section Do not submit to	n mit to
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COMPANY	TIME	COMPANY	COOLER SEAL:	DINTACT DEROKEN	U MINCI U BNONEN		

White - Lahoratory Pink - Lahoratory Canary . Project File: Monije - Data Manarement





TABLE OF CONTENTS

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

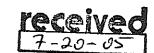
SDG:

05G055

SECTION		PAGE
Cover Letter, Co	OC/Sample Receipt Form	1000 – 1008
GC/MS-VOA	*	2000 –
GC/MS-SVOA	**	3000 —
GC-VOA	**	4000 —
GC-SVOA	METHOD 3550B/8015B	5000 5078
HPLC	**	6000 –
METALS	**	7000
WET	水 木	8000 —
OTHERS	**	9000 –

^{** -} Not Requested









1835 W. 205th Street

Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Date: 07-18-2005 EMAX Batch No.: 05G055

Attn: Sevda Aleckson

SES-TECH

1940 E. Deere Avenue, Suite 200 Santa Ana CA 92705

Subject: Laboratory Report Project: Camp Pendleton, UST Site 16144

Enclosed is the Laboratory report for samples received on 07/11/05. The data reported include :

Sample ID	Control #	Sal Date		
oumpte 10	Control #	Col Date	Matrix	Analysis

0003-008	G055-01	07/11/05	SOIL	CANCELLED
0003-009	G055-02	07/11/05	SOIL	TPH DIESEL
0003-010	G055-03	07/11/05	SOIL	TPH DIESEL
0,003-011	G055-04	07/11/05	SOIL	TPH DIESEL
0003-012	G055-05	07/11/05	SOIL	TPH DIESEL
0003-013	G055-06	07/11/05	SOIL	TPH DIESEL
0003-014	G055-07	07/11/05	SOIL	TPH DIESEL
0003-015	G055-08	07/11/05	SOIL	TPH DIESEL
0003-016	G055-09	07/11/05	SOIL	TPH DIESEL
0003-017	G055-10	07/11/05	SOIL	TPH DIESEL
0003-018	G055-11	07/11/05	SOIL	TPH DIESEL
0003-019	G055-12	07/11/05	SOIL	TPH DIESEL
0003-020	G055-13	07/11/05	SOIL	TPH DIESEL
0003-021	G055-14	07/11/05	SOIL	TPH DIESEL
0003-022	G055 - 15	07/11/05	SOIL	TPH DIESEL
0003-023	G055-16	07/11/05	SOIL	TPH DIESEL
0003-024	G055-17	07/11/05	SOIL	TPH DIESEL
0003-025	G055 - 18	07/11/05	SOIL	TPH DIESEL
0003-026	G055 - 19	07/11/05	SOIL	
· 	4033-17	417 117 03	301 F	TPH DIESEL



Sample ID	Control #	Col Date	Matrix	Analysis
0003-027	G055-20	07/11/05	1102	TPH DIESEL
0003-028	G055-21	07/11/05	SOIL	TPH DIESEL
0003-029	G055-22	07/11/05	SOIL	
0003-030				TPH DIESEL
,	G055-23	07/11/05	SOIL	TPH DIESEL
0003-031	G055-24	07/11/05	SOIL	TPH DIESEL

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D. Laboratory Director



NUMBER 12422 CHAIN-OF-CUSTODY RECORD OSGOSS	ANALYSES REQUIRED LABORATORY NAME	6773	LABORATORY D (FOR LABORATORY)	250550	//											REMAINING SAMENTS ACTUALITY SAME DE BOY ADDITION	DAY THE	į		A INTACT DEROKEN
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White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

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White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



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White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



Hanh Bui

From:

Richard Beauvil

Sent:

Thursday, July 14, 2005 10:59 AM

To:

Hanh Bui

Subject:

FW: Bottle order for Friday

Hi Hanh,

Please find the email below. Please put a copy in the master folder.

Thank you.

Richard.

----Original Message-----

From: Richard Beauvil

Sent: Wednesday, July 13, 2005 5:26 PM To: 'Tania.TurpijnKeasler@tteci.com' Subject: RE: Bottle order for Friday

Hi Tanya,

Thank you. As per our phone conversation, we will hold the samples for 8260B until further notice. I will revise the login for 05G055 to remove the 8260 and log only tphext for 05G064 received yesterday. We will freeze the encores received yesterday for additional analysis later. For the 14 samples already extracted the price is \$25.00/sample.

Thank you.

Richard.

----Original Message---From: Tania.TurpijnKeasler@tteci.com [mailto:Tania.TurpijnKeasler@tteci.com]

Sent: Wednesday, July 13, 2005 4:24 PM

To: RBeauvil@emaxlabs.com

Subject: Bottle order for Friday

Richard,

I would like the following bottles, coolers and trip blanks delivered to Santa Ana on Friday. Call or e-mail if you have questions.

5 cases (12 ct) of 1 liter amber bottles 1 box (72 ct??) of Hcl preserved 40 mil voas.

Lets start with 5-6 coolers and 15 trip blanks.

I think that covers it. We plan to begin groundwater sampling on Monday and will need pick-ups through Thursday. We maybe able to skip some pick up days, as all the holding times are 14 days (I believe). We will be sampling under PO 053915 Site 1791 and CTO 03 PO 055850 Site 16144 That is the sap you didn't have I will attach a version of the text you have the tables. Analysis will be for TPH-d, PAHs and VOCs.

Thank you,

Tania

1005



(See attached file: 050277 Final SAP_Rev0.doc)



EMAX-SM02 Rev. 3 Appendix 2

SAMPLE RECEIPT FORM 1

Typo	of Delivery				
EMAX Courier	Of Delivery	Delivered By/Airbill	_	ECN	05G0S5
Client Delivery	*	PHIL HATCHER	<u>ر</u>	Recepient	W. LUNA
Third Party				Date	7-11-05
mild Party				Time	D:30
[] 'Client Name		COC Inspection		m	
Address		Sampler Name			Date/Time/Location
☐ Client PM/FC		Courier Signature/Date/Time		Analysis Re	quired
Tel #/Fax #		TAL		Matrix	
Safety Issues	□	Sample ID		Preservative	e (if any)
Comments:	None	High Concentrations expected		☐ Superfund !	Site Samples
Comments.	Rad Screening Requ	ired			
	······································				
Container		Packaging Inspection			
Condition	☑ Cooler	Box		Ε	
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Packaging	Bubble Pack	Styrofoam	Sufficier	nt [PLASTIC BAG
Temperatures	Cooler 1T	☑ Cooler 2	Cooler 3		Cooler 4
	Cooler 5	Cooler 6			Cooler 8
	Cooler 9	Cooler 10			Cooler 12
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Sample Labeling _	At	SRF CLU	آ مال	P M	12729
Date	07-11-05	Date 7/12	7 5	Date	7/12/05
		1/15		Date	111 0/ 0 3



REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F .	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
В,	В	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
Ε.	J	Indicates that the result is above the maximum calibration range.
*	 	Out of QC limit.

Note: The above qualiflers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.



LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 16144

METHOD 3550B/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 05G055



CASE NARRATIVE

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

SDG:

05G055

METHOD 3550B/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Twenty-three (23) soil samples were received on 07/11/05 for Total Petroleum Hydrocarbons by Extraction analysis by Method 3550B/8015B in accordance with SW846 3RD Edition.

1. Holding Time

Analytical holding time was met. Extraction was performed and completed on 07/12/05.

2. Calibration

Initial calibration was seven points for Diesel. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals and all recoveries were within 85-115%.

3. Method Blank

Method blanks were free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit except Hexacosane recovery in sampes G055-02 and -03 were bias high due to matrix interference; however, Bromobenzene an alternate surrogate met the QC criteria. Surrogate recoveries in sample G055-07 could not be evaluated due to dilution.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

Samples G055-08 and -22 were spiked. Recoveries were within QC limits.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met. Samples were quantitated from C10 to C24 using Diesel (C10-C24) calibration factor.

Samples G055-02, -03 and -07 displayed diesel like fuel pattern.

Samples G055-13 to -15 and -20 displayed heavier fuel pattern.

LAB CHRONICLE TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Laboratory Dilution X Analysis Extraction Sample Sample Sample ID Factor Hoist DateTime DateTime Date FN Colores	Project		16144						Instru	Instrument In . Grinsh
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Sample 1D Factor Moist Date fine Date	Client	Laboratory	Dilution	×	Analysis		Sample	Calibration Pren.	Pren.	
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6.055-088 1 6.2 07/13/0505:34 07/12/0512:00 16f1063A 1055-09 1 11.7 07/13/0505:34 07/12/0512:00 16f1063A 11.7 07/13/0506:16 07/12/0512:00 16f1063A 11.7 07/13/0506:16 07/12/0512:00 16f1063A 11.2.3 07/13/050740 07/12/0512:00 16f1065A 11.2.3 07/13/050740 07/12/0512:00 16f1065A 11.2.3 07/13/0508:22 07/12/0512:00 16f1065A 11.2.3 07/13/0522:24 07/12/0512:00 16f1065A 11.2.1 07/13/0522:24 07/12/0512:00 16f1065A 11.2.1 07/13/0522:24 07/12/0512:00 16f1087A 11.2.1 07/13/0513:48 07/12/0512:00 16f1087A 11.2.1 07/13/0513:48 07/12/0512:00 16f1087A 11.2.1 07/13/0513:48 07/12/0512:00 16f1077A 11.2.1 07/13/0513:29 07/12/0512:00 16f1077A 11.2.1 07/13/0513:29 07/12/0512:00 16f1077A 11.2.1 07/13/0513:29 07/12/0512:00 16f1077A 11.2.2 07/13/0513:29 07/12/0512:00 16f1077A 11.2.2 07/13/0513:29 07/12/0512:00 16f1077A 11.2.2 07/13/0512:00 07/12/0512:00 16f1077A 11.2.2 07/13/0512:00 07/12/0512:00 16f1078A 11.2.2 07/13/0522:00 07/12/0512:00 16f1078A 11.2.2 07/13/0522:00 07/12/0512:00 16f1088A 11.2.2 07/13/0522:00 07/12/0512:00 16f1088A 11.2.2 07/13/0522:00 07/12/0512:00 16f1078A 11.2.2 07/13/0522:00 07/12/0512:00 16f1088A 11.2.2 07/13/0522:00 07/12/0512:00 16f1088A 11.2.2 07/13/0522:00 16f1080A 11.2.2 07/13/0522:00 16f1088A 11.2 07/13/0522	2003-015MS	G055-08M	-	6.2	07/13/0504:52	07/12/0512-00	TE\$10618	TOTACE	2000000	Freid Sample
6055-09 11.7 07/13/0506:16 07/12/0512:00 1611063A 6055-10 1 12.3 07/13/0506:58 07/12/0512:00 1611064A 6055-12 1 12.3 07/13/0508:22 07/12/0512:00 1611065A 10555-12 1 12.3 07/13/0502:24 07/12/0512:00 1611065A 10555-13 1 2.1 07/13/0522:24 07/12/0512:00 1611065A 10555-14 1 2.1 07/13/0523:48 07/12/0512:00 1611086A 11.0 07/13/0523:48 07/12/0512:00 1611086A 11.0 07/13/0523:48 07/12/0512:00 1611086A 11.0 07/13/0523:48 07/12/0512:00 1611086A 11.0 07/13/0513:59 07/12/0512:00 1611076A 11.0 07/13/0513:59 07/12/0512:00 1611076A 11.0 07/13/0513:59 07/12/0512:00 1611076A 11.0 07/13/0513:51 07/12/0512:00 1611076A 11.0 07/13/0513:01 07/12/0512:00 1611076A 11.0 07/13/0512:00 1611076A	0003-015MSD	G055-08S	-	6.2	07/13/0505:34	07/12/0512:00	TG11062A	16110584	Daedoos	Matrix Spike Sample (MS)
6055-10 12.3 07/13/0506:58 07/12/0512:00 TG11065A 1055-12 1 12.3 07/13/0507:40 07/12/0512:00 TG11065A 1055-12 1 12.3 07/13/0508:22 07/12/0512:00 TG11065A 1055-13 1 3.7 07/13/0522:24 07/12/0512:00 TG11065A 107/13/0522:24 07/12/0512:00 TG11065A 107/13/0522:24 07/12/0512:00 TG11065A 107/13/0523:48 07/12/0512:00 TG11065A 107/13/05-15 1 11.0 07/13/0513:57 07/12/0512:00 TG11065A 107/13/05-15 1 11.0 07/13/0513:57 07/12/0512:00 TG11075A 107/13/05-15 1 12.4 07/13/0513:57 07/12/0512:00 TG11075A 107/13/05-22 1 10.5 07/13/0516:46 07/12/0512:00 TG11075A 10.5 07/13/0512:00 TG11085A 10.5 07/13/0512:00 TG11085A 10.5 07/13/0512:00 TG11080A 10.5 07/13/0512	010-010	6022-09	τ-	11.7	07/13/0506:16	07/12/0512:00	TG1106Z8	TC110504	200000	HS DUDITIONTE (MSD)
6055-12 1 12.3 07/13/050740 07/12/0512:00 1611065A 1 6055-12 1 3.7 07/13/0502:24 07/12/0512:00 1611065A 1 6055-13 1 2.7 07/13/052:24 07/12/0512:00 1611065A 1 6055-14 1 2.1 07/13/052:346 07/12/0512:00 1611085A 1 6055-15 1 1.0 07/13/0513:57 07/12/0512:00 1611085A 1 1 1.0 07/13/0513:57 07/12/0512:00 1611085A 1 1 1.0 07/13/0513:57 07/12/0512:00 1611075A 1 1 15.4 07/13/0513:57 07/12/0512:00 1611075A 1 1 13.5 07/13/0513:21 07/12/0512:00 1611075A 1 1 13.5 07/13/0513:21 07/12/0512:00 1611075A 1 1 10.5 07/13/0513:20 07/12/0512:00 1611075A 1 1 10.5 07/13/0512:00 07/12/0512:00 1611075A 1 10.5 07/13/0512:00 07/12/0512:00 1611075A 1 10.5 07/13/0521:00 07/12/0512:00 1611075A 1 10.5 07/13/0521:00 07/12/0512:00 1611085A 1 10.5 07/13/0512:00 1611085A 1 10.5 07/13/0512:00 1611085A 1 10.5 07/13/0512:00 1611085A 1 10.5 07/13/0512:00 1611080A 1 10.5 0	710-snoo	6055-10	,- -	12.3	07/13/0506:58	07/12/0512-00	TE110624	10110004	Databooks	Field Sample
6055-12 1 8.0 07/13/0508122 07/12/0512:00 1611085A 1 6055-13 1 3.7 07/13/0508122 07/12/0512:00 1611085A 1 6055-14 1 2.1 07/13/0522:24 07/12/0512:00 1611085A 1 1 2.5 07/13/0523:48 07/12/0512:00 1611085A 1 11.0 07/13/0513:48 07/12/0512:00 1611085A 1 11.0 07/13/0513:48 07/12/0512:00 1611085A 1 12.5 07/13/0513:57 07/12/0512:00 1611075A 1 15.4 07/13/0513:39 07/12/0512:00 1611075A 1 13.5 07/13/0513:20 07/12/0512:00 1611075A 1 13.5 07/13/0513:20 07/12/0512:00 1611075A 1 10.5 07/13/0513:20 07/12/0512:00 1611075A 1 10.5 07/13/0513:20 07/12/0512:00 1611075A 1 10.5 07/13/0512:00 07/12/0512:00 1611075A 1 10.7 07/13/0520:18 07/12/0512:00 1611085A 1 10.9 07/13/0521:42 07/12/0512:00 1611085A 1 10.9 07/13/0512:00 1611080A 1 10.9 07/13/0512:00 1611080	810-5000	G055-11	-	12.3	07/13/0507-40	07/12/0512:00	10110047	ADCUL 101	DSGUUSS	Field Sample
6055-13 1 3.7 07/13/0522.24 07/12/0512.00 1611086A 1 6055-14 2.1 07/13/0522.24 07/12/0512.00 1611086A 1 6055-15 1 2.5 07/13/0523.64 07/12/0512.00 1611086A 1 11.0 07/13/0523.48 07/12/0512.00 1611087A 1 11.0 07/13/0513.57 07/12/0512.00 1611076A 1 12.5 07/13/0513.57 07/12/0512.00 1611076A 1 15.4 07/13/0515.21 07/12/0512.00 1611076A 1 13.5 07/13/0515.21 07/12/0512.00 1611076A 1 10.5 07/13/0516.44 07/12/0512.00 1611076A 1 10.5 07/13/0516.45 07/12/0512.00 1611076A 1 10.7 07/13/0516.18 07/12/0512.00 1611076A 1 10.7 07/13/0516.18 07/12/0512.00 1611076A 1 10.7 07/13/0521.18 07/12/0512.00 1611076A 1 10.7 07/13/0521.18 07/12/0512.00 1611086A 1 10.9 07/13/0521.19 07/12/0512.00 1611086A 1 10.9 07/13/0521.10 07/12/0512.00 1611086A 1 10.9 07/13/0521.10 07/12/0512.00 1611086A 1 10.9 07/13/0512.10 1611080A 1 10.9 07/13/05	0003-019	6055-12	,-	8	07/13/050R-22	07/12/0512:00	1611065A	1611058A	DSG008S	Field Sample
6055-14 2.1 07/13/0523:66 07/12/0512:00 1611086A 16055-15 1 2.5 07/13/0523:48 07/12/0512:00 1611086A 17.5 07/13/0523:48 07/12/0512:00 1611076A 17.5 07/13/0513:57 07/12/0512:00 1611076A 17.5 07/13/0514:39 07/12/0512:00 1611076A 17.5 07/13/0514:39 07/12/0512:00 1611076A 17.5 07/13/0514:46 07/12/0512:00 1611076A 17.5 07/13/0521:18 07/12/0512:00 1611086A 17.5 07/13/0521:42 07/13/0521:42 07/13/0521:42 07/13/0521:42 07/13/0521:42 07/13/0521:42 07/13/0521:42 07/13/0521:40 07/12/0512:00 1611086A 17.5 07/13/0521:42 07/13/0521:40 17.5 07/1	0003-050	6055-13			07/13/0522.26	07/12/0712 00	151 TOOOR	1611058A	DSG008S	Field Sample
6055-15 1 2.5 07/13/0523:40 07/12/0512:00 1611087A 1 6055-16 1 1.0 07/13/0523:40 07/12/0512:00 1611088A 1 6055-16 1 1.0 07/13/0513:57 07/12/0512:00 1611076A 1 1 5.4 07/13/0513:57 07/12/0512:00 1611076A 1 1 15.4 07/13/0513:21 07/12/0512:00 1611076A 1 1 13.5 07/13/0513:21 07/12/0512:00 1611076A 1 1 13.5 07/13/0513:01 07/12/0512:00 1611076A 1 1 10.5 07/13/0513:01 07/12/0512:00 1611076A 1 1 10.7 07/13/0512:00 07/12/0512:00 1611076A 1 1 10.7 07/13/0512:00 07/12/0512:00 1611076A 1 1 10.7 07/13/0521:00 07/12/0512:00 1611076A 1 1 10.7 07/13/0521:00 07/12/0512:00 1611085A 1 1 10.9 07/13/0521:42 07/12/0512:00 1611085A 1 1 10.9 07/13/0521:42 07/12/0512:00 1611086A 1 1 10.9 07/13/0521:42 07/12/0512:00 1611080A 1 1 10.9 07/13/0521:42 07/12/0512:00 1611080A 1 1 10.9 07/13/0521:40 07/12/0512:00 1611080A 1 1 10.9 07/13/0521:40 07/12/0512:00 1611080A 1 1 10.9 07/13/0512:00 1611080A 1 1 10.9 07/13/0	0003-021	G055-14	- ,-		07/12/02/23/04	00.2120/21/10	TG11086A	TG11082A	DSC0098	Field Sample
6055-16 11.0 07/13/0515:29 01/12/0512:00 1611088A 1 1 1.0 07/13/0515:29 07/12/0512:00 1611074A 1 1 1.0 07/13/0515:29 07/12/0512:00 1611074A 1 1 15.4 07/13/0515:21 07/12/0512:00 1611075A 1 1 13.5 07/13/0515:21 07/12/0512:00 1611076A 1 1 13.5 07/13/0516:04 07/12/0512:00 1611076A 1 1 10.5 07/13/0516:04 07/12/0512:00 1611077A 1 1 10.7 07/13/0512:04 07/12/0512:00 1611078A 1 1 10.7 07/13/0512:09 07/12/0512:00 1611078A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0003-022	6055-15		נית	07.12.022.00	07.12/0212:00	TG11087A	TG11082A	DSG009S	Field Sample
6055-17 17.30514:39 07/12/0512:00 1611074A 6055-18 17.54 07/13/0514:39 07/12/0512:00 1611075A 6055-18 15.4 07/13/0518:39 07/12/0512:00 1611075A 6055-20 1 13.5 07/13/0516:46 07/12/0512:00 1611077A 6055-21 1 10.5 07/13/0516:46 07/12/0512:00 1611077A 6055-22 1 10.5 07/13/0512:00 1611078A 10.5 07/13/0522:00 1611078A 10.7 07/13/0512:00 1611078A 10.5 07/13/0522:00 07/12/0512:00 1611078A 10.5 07/13/0522:00 07/12/0512:00 1611078A 10.5 07/13/0522:00 16110778 10.5 07/13/0522:00 16110	0003-023	G055-16		; ;	07/12/05/3:48	07/12/0512:00	TG11088A	TG11082A V	056009S	Field Sample
6055-18 15.4 07/13/0515:21 07/12/0512:00 1G11075A 1655-18 15.4 07/13/0515:21 07/12/0512:00 1G11075A 17.5 07/13/0515:21 07/12/0512:00 1G11076A 17.5 07/13/0516:46 07/12/0512:00 1G11077A 17.5 07/13/0516:46 07/12/0512:00 1G11078A 17.2 07/13/0516:48 07/12/0512:00 1G11078A 17.2 07/13/0520:18 07/12/0512:00 1G11078A 17.2 07/13/0520:18 07/12/0512:00 1G11078A 17.2 07/13/0521:42 07/12/0512:00 1G11078A 17.5 07/13/0521:42 07/13/0512:00 1G11078A 17.5 07/13/051	0003-024	6055-17		- ^	75:51507617:0	01/21/01/21/00	TG11074A	TG11070A	DSG009S	Field Sample
6055-19 13.5 07/13/0516:04 07/12/0512:00 TG11076A 1 13.5 07/13/0516:04 07/12/0512:00 TG11076A 1 13.5 07/13/0516:04 07/12/0512:00 TG11077A 1 10.7 07/13/0513:00 07/12/0512:00 TG11077A 1 10.7 07/13/0517:28 07/12/0512:00 TG11079A 1 10.2 07/13/0521:00 07/12/0512:00 TG11079A 1 17.2 07/13/0521:00 07/12/0512:00 TG1108A 1 17.2 07/13/0521:00 07/12/0512:00 TG1108A 1 10.9 07/13/0513:00 TG1108A 1 10.9 0	0003-025	6055-18	٠,-	, , t	07/13/05[4:39	07/12/0512:00	TG11075A	TG11070A	DSG009S	Field Sample
10.5 07/13/0516:46 07/12/0512:00 1611077A 17/13/0512:00 1611077A 17/13/0516:46 07/12/0512:00 1611078A 17/13/0516:46 07/12/0512:00 1611078A 17/13/052-22 17.2 07/13/052:18 07/12/0512:00 1611079A 17/13/052-22 17.2 07/13/052:18 07/12/0512:00 1611088A 17.2 07/13/0521:42 07/12/0512:00 1611086A 17/13/052-24 17.2 07/13/051:42 07/12/0512:00 1611086A 17/13/052-24 17/13/0513:10 1611086A 17/13/052-24 17/13/0513:10 1611086A 17/13/052-24 17/13/0513:10 1611086A 17/13/0512:00 1611086A 17/13/0512:00 1611086A 17/13/0512:00 1611086A 17/13/0512:00 1611086A 17/13/0512:00 1611086A 17/13/0512:00 1611080A 1	0003-026	6055-10	- •		17:5150/51/10	07/12/0512:00	TG11076A	TG11070A	DSG009S	Field Sample
6055-21 10.7 07/13/0516:46 07/12/0512:00 1611078A 1 10.7 07/13/0517:28 07/12/0512:00 1611078A 1 10.7 07/13/052:18 07/12/0512:00 1611079A 1 10.2 07/13/052:18 07/12/0512:00 1611083A 1 10.2 07/13/0521:00 07/12/0512:00 1611085A 1 10.9 07/13/05112:00 1611085A 1 10.9 07/13/05112:00 1611085A 1 10.9 07/13/0512:00 1611080A 1 10.9 07/13/0512:00	0003-027	6055-20			07/15/05/16:04	07/12/0512:00	TG11077A	TG11070A	S6009SG	Field Sample
G055-22 1 7.2 07/13/0517:28 07/12/0512:00 1G11079A 1 7.2 07/13/0520:18 07/12/0512:00 1G11079A 1 7.2 07/13/0520:18 07/12/0512:00 1G11083A 1 7.2 07/13/0521:00 07/12/0512:00 1G11084A 1 7.2 07/13/0521:42 07/12/0512:00 1G11084A 1 7.2 07/13/0513:00 1G11085A 1 10.9 07/13/0518:11 07/12/0512:00 1G11085A 1 0.7 07/13/0518:11 07/12/0512:00 1G11080A 1	0003-028	COSE 21	- •	ر ا ا	07/13/0516:46	07/12/0512:00	TG11078A	TG11070A	S6009SQ	Field Samle
G055-224 1 7.2 07/13/0520:18 07/12/0512:00 1G11083A 1 7.2 07/13/0521:00 07/12/0512:00 1G11084A 1 7.2 07/13/0521:00 07/12/0512:00 1G11084A 1 7.2 07/13/0521:42 07/12/0512:00 1G11085A 1 10.9 07/13/0518:11 07/12/0512:00 1G11085A 1 0.7/13/0512:00 1G11080A 1 07/13/0512:00 1G11080A 1	0003-029	12-CCB		70.7	07/13/0517:28	07/12/0512:00	TG11079A	TG11070A	DSGOOS	Clones Liein
4055-225 1 7.2 07/13/0521:00 07/12/0512:00 1611084A 1 4055-225 1 7.2 07/13/0521:42 07/12/0512:00 1611085A 1 6055-23 1 10.9 07/13/0518:11 07/12/0512:00 1611080A 1 6055-24 1 0.9 07/13/0518:11 07/12/0512:00 1611080A 1	0003-029MS	22-550D	- ,	7.2	07/13/0520:18	07/12/0512:00	TG11083A	TG11082A	DSG009S	
4055-25 1 7.2 07/13/0521:42 07/12/0512:00 TG11085A 1 G055-23 1 10.9 07/13/0513:1 07/12/0512:00 TG11080A 1 G055-24 1 0.7 07/13/0518:1 07/12/0512:00 TG11080A 1	0003-029Msp	#22-CC08	_	7.2	07/13/0521:00	07/12/0512:00	TG11084A	TG110824	Decidoc	Material Construction Construction
G055-24 1 10.9 07/13/0518:11 07/12/0512:00 TG11080A	0003-030	4055-22S	-	7.2	07/13/0521:42	07/12/0512:00	TG11085A	TG11082A	DSGOOS	Mari ix spike sample (MS)
10000-24	0003-031	40.55 CO	_	0.0	07/13/0518:11	07/12/0512:00	TG11080A	TG11070A	DSGOOG	Giold Camin
. V.(U(/13/U518:53 07/12/0512:00 TE110818	70 70	6055-24		7.6	07/13/0518:53	07/12/0512:00	T6110814	1010704	2000000	rield sample

FN - Filename X Moist - Percent Moisture

5002



SAMPLE RESULTS



Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G055
Sample ID: 0003-009
Lab Samp ID: 0007-009 Date Collected: 07/11/05 Date Received: 07/11/05 Date Extracted: 07/12/05 12:00 Date Analyzed: 07/13/05 09:03 Lab Samp ID: G055-02 Dilution Factor: 1 Lab File ID: TG11067A : SOIL Matrix Ext Btch ID: DSG008S % Moisture : 9.3 Calib. Ref.: TG11058A Instrument ID : GCT050 RESULTS RL MDL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL 2000 11 5.5

SURROGATE PARAMETERS % RECOVERY QC LIMIT
HEXACOSANE 167* 65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135% 65-135% 65-135%

* : Out of QC limit due to matrix interference



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

: c:\ezchrom\chrom\tg11\tg11.067 : c:\ezchrom\methods\ds50c31.met File Method

: 05G055-02 Sample ID

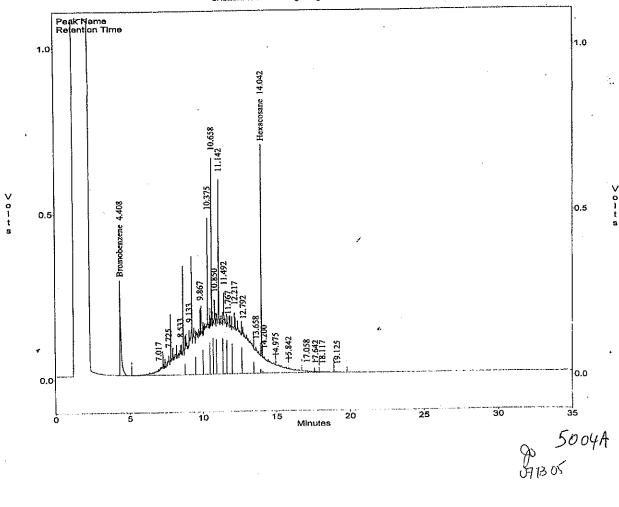
: Jul 13, 2005 09:03:54 : Jul 13, 2005 09:55:33 Acquired Printed

: JANE User

Channel A Results

#.	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	4.408	. 1354733	16597.4 -	
	Hexacosane	14.042	_ 1315645	31504.4 -	
	Diesel (TOTAL)	•	48533396	25205.2	1925.5
			45031056	25139.0	. 1791.3
	Diesel(C10-C24)		47732740	25150.4	1897.9
G3	Diesel(C10-C28)		4//32/40	70120.4	

c:\ezchrom\chrom\tg11\tg11.067 -- Channel A





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Client : SES-TECH Project : CAMP PENDL Batch No. : 05G055 Sample ID: 0003-010 Lab Samp ID: G055-03 Lab File ID: TG11054A Ext 8tch ID: DSG008S Calib. Ref.: TG11045A			Date Extra Date Ana- Dilution Fa Matrix % Moisture Instrument	eived: 07/1 acted: 07/1 lyzed: 07/1 actor: 1 : SOIL : 8.6 ID : GCTO	1/05 2/05 12:00 2/05 23:59
PARAMETERS			ULTS /kg) (mg	RL /kg)	MDL (mg/kg)
DIESEL		140	30 /	11	5.5
SURROGATE PARAMETERS HEXACOSANE		% RECOV		LIMIT 65-135	
RL: Reporting Limi Parameter H-C Rang Diesel C10-C24			,		•
SURR : Hexacosane	Water Soil	Spike 0.25 mg/L 25 mg/kg		65 - 135X	



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.054
Method : c:\ezchrom\methods\ds50c31.met -

Sample ID : 05G055-03

Acquired : Jul 12, 2005 23:59:16 Printed : Jul 13, 2005 09:48:50

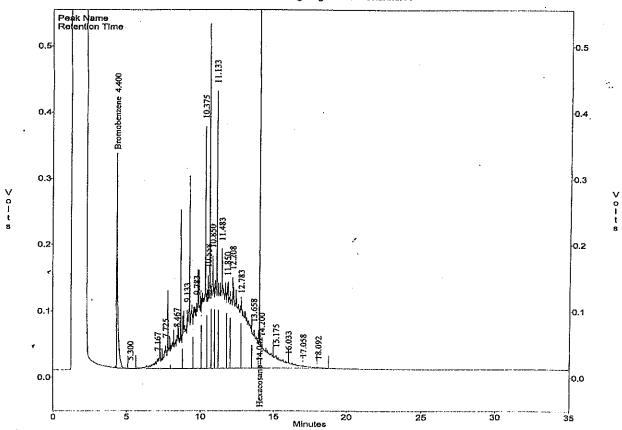
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area		Ave. C	F	ESTD Conc. (ppm)	

1	Bromobenzene	4.400	14	88644	165	97.4-	89.7	,
	Hexacosane	14.042	- 12	16618	315	04.4.	. 38.6	i
	Diesel (TOTAL)	•	347	53800	252	05.2 -	1378.8	i
	Diesel(C10-C24)		322	61500	251	39.0 4	1283.3	
G3	Diesel (Cl0-C28)		335	48708	251	50.4	1333.9	į

c:\ezchrom\chrom\tg11\tg11.054 -- Channel A



5005A



: SES-TECH Date Collected: 07/11/05 Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G055 Date Received: 07/11/05
Date Extracted: 07/12/05 12:00
Date Analyzed: 07/13/05 00:41 Sample ID: 0003-011 Lab Samp ID: G055-04 Lab File ID: TG11055A Ext Btch ID: DSG008S Dilution Factor: 1 Matrix : SOIL % Moisture % Moisture : 15.2 Instrument ID : GCT050 Calib. Ref.: TG11045A RESULTS RL MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 12 5.9 SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 109 65-135

RL: Reporting Limit Parameter H-C Range Diesel C10-C24

 SURR
 : Hexacosane
 Water Soil
 Spike Spike Spike
 QC Limit Government
 QC Limit Government

 Soil
 0.25 mg/kg
 63-165%
 65-135%

 65-135%
 65-135%



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.055
Method : c:\ezchrom\methods\ds50c31.met ,

Sample ID : 05G055-04

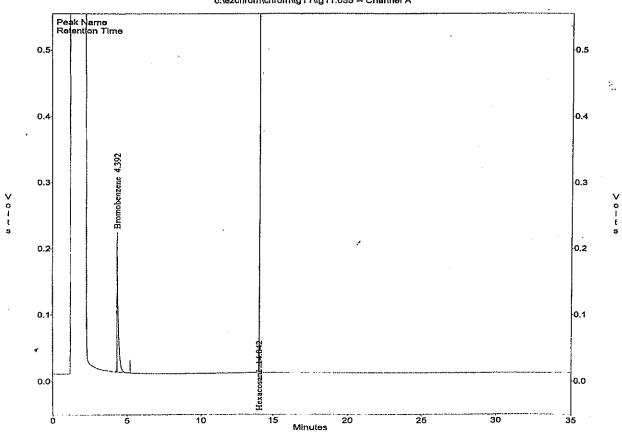
Acquired : Jul 13, 2005 00:41:13 Printed : Jul 13, 2005 09:49:09

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	4.392	1141791	16597.4	. 68.8
2	Hexacosane	14.042	861978	31504.4	· 27.4
G1	Diesel (TOTAL)	Y	0	25205.2	0.0
G2	Diesel(C10-C24)	•	0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0

c:\ezchrom\chrom\tg11\tg11.055 -- Channel A





Client : SES-TECH

Date Collected: 07/11/05 : CAMP PENDLETON, UST SITE 16144 Project Date Received: 07/11/05 Date Extracted: 07/12/05 12:00

Batch No. : 05G055 Sample ID: 0003-012 Lab Samp ID: G055-05 Lab File ID: TG11056A Date Analyzed: 07/13/05 01:23 Dilution Factor: 1 % Moisture : 12 ° Ext Btch ID: DSG008S

Calib. Ref.: TG11045A Instrument ID : GCT050

55#24#44========

RESULTS MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 5.7

SURROGATE PARAMETERS % RECOVERY QC LIMIT **HEXACOSANE** 107 65-135

RL : Reporting Limit
Parameter H-C Range Diesel C10-C24

Spike QC Limit QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135%

65-135% Soil 25 mg/kg 65 - 135%

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.056
Method : c:\ezchrom\methods\ds50c31.met /

Sample ID : 05G055-05

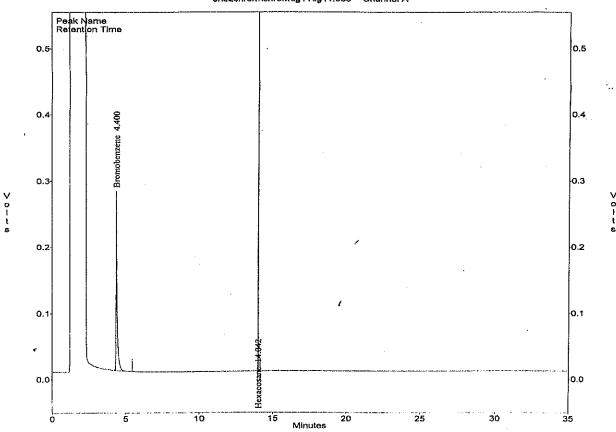
Acquired : Jul 13, 2005 01:23:07 Printed : Jul 13, 2005 09:49:28

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
~ -					
1	Bromobenzene	4.400	- 1293592	16597.4	77.9
2	Hexacosane	14.042	844598	31504.4 /	. 26.8
G1	Diesel (TOTAL)	•	0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel (C10-C28)		0	25150.4	. 0.0

c:\ezchrom\chrom\tg11\tg11.056 - Channel A





Client : SES-TECH Date Collected: 07/11/05 Project : CAMP PENDLETON, UST SITE 16144 Date Received: 07/11/05 Batch No. : 05G055 Sample ID: 0003-013 Date Extracted: 07/12/05 12:00 Date Analyzed: 07/13/05 02:05 Lab Samp ID: G055-06 Dilution Factor: 1 Lab File ID: TG11057A Matrix : SOIL Ext Btch ID: DSG008S % Moisture : 8.6 Calib. Ref.: TG11045A Instrument ID : GCT050

RESULTS RL MDL (mg/kg) PARAMETERS (mg/kg) (mg/kg) DIESEL ND 11 5.5

SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 103 65-135

: Reporting Limit er H-C Range Parameter Diesel C10-C24

Spike QC Limit QC Limit : Hexacosane 0.25 mg/L 63-165% 25 mg/kg 65-135% Water 63-165% 65-135%

Soil 65-135%



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

: c:\ezchrom\chrom\tg11\tg11.057 : c:\ezchrom\methods\ds50c31.met File Method

Sample ID

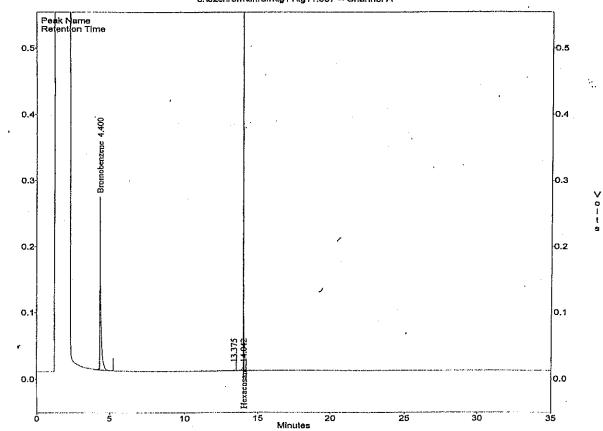
: 05G055-06 : Jul 13, 2005 02:05:04 : Jul 13, 2005 09:50:02 Acquired Printed

: JANE User

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzeńe	4.400 -	1247123	16597.4	75.1
3	Hexacosane	14.042 /	813958	31504.4 ~	, 25.8
G1	Diesel (TOTAL)	•	1531	25205.2 -	0.1
G2	Diesel(C10-C24)		1531	25139.0	0.1
. G3	Diesel (C10-C28)		1531	25150.4	0.1

c:\ezchrom\chrom\tg11\tg11.057 -- Channel A





Client : SES-TECH Date Collected: 07/11/05 Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G055
Sample ID: 0003-014 Date Received: 07/11/05 Date Extracted: 07/12/05 12:00 Date Analyzed: 07/13/05 09:45 Lab Samp ID: G055-07T Dilution Factor: 20 Lab File ID: TG1106BA : 50IL : 10.2 Matrix Ext Btch ID: DSG008S % Moisture Calib. Ref.: TG11058A Instrument ID : GCT050 RESULTS RL MDL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL 23000 220 110 SURROGATE PARAMETERS % RECOVERY QC LIMIT -------HEXACOSANE ĐO

65-135

: Reporting Limit Parameter N-C Range Diesel C10-C24

Spike QC Limit QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135% Soil 25 mg/kg 65-135% 65-135%

DO : Diluted Out

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

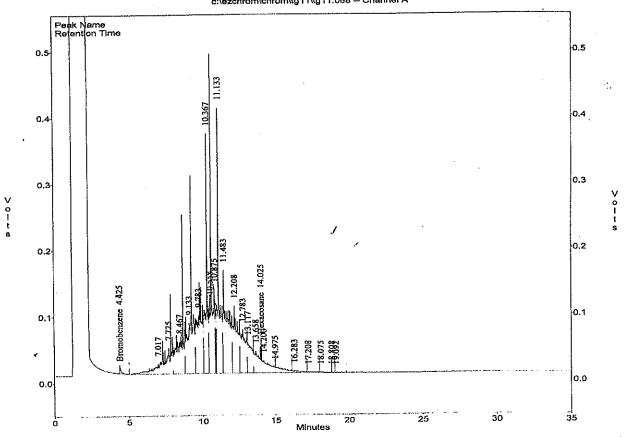
: c:\ezchrom\chrom\tg11\tg11.068 : c:\ezchrom\methods\ds5c31.met : 05G055-07T .05/1ML File Method

Sample ID : Jul 13, 2005 09:45:59 : Jul 13, 2005 12:00:18 Acquired Printed

: JANE User Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	4.425	73808	16597.4	
16	Hexacosane	14.025		31504.4.	
Gl	Diesel (TOTAL)	•	27468124	25205.2.	
G2	Diesel(C10-C24)		26202130	25139.0	
	Diesel(C10-C28)		27272912	25150.4	_ 1084.4

c:\ezchrom\chrom\tg11\tg11.068 -- Channel A



5009A



Client : SES-TECH Date Collected: 07/11/05 Project : CAMP PENDLETON, UST SITE 16144 Batch No. : 05G055 Date Received: 07/11/05 Date Extracted: 07/12/05 12:00 Sample ID: 0003-015 Lab Samp ID: G055-08 Date Analyzed: 07/13/05 04:10 Dilution Factor: 1 : SOIL Lab File ID: TG11060A Matrix Ext Btch ID: DSG008S % Moisture : 6.2 Calib. Ref.: TG11058A Instrument ID : GCT050 RESULTS RL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.3 SURROGATE PARAMETERS % RECOVERY QC LIMIT ------HEXACOSANE 107 65-135

RL: Reporting Limit
Parameter H-C Range
Diesel C10-C24

 SURR
 : Hexacosane
 Water Soil
 Spike 0.25 mg/L 03-165%
 QC Limit 65-135%
 QC Limit 65-135%
 65-135%
 65-135%

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.060
Method : c:\ezchrom\methods\ds50c31.met .

Sample ID : 05G055-08

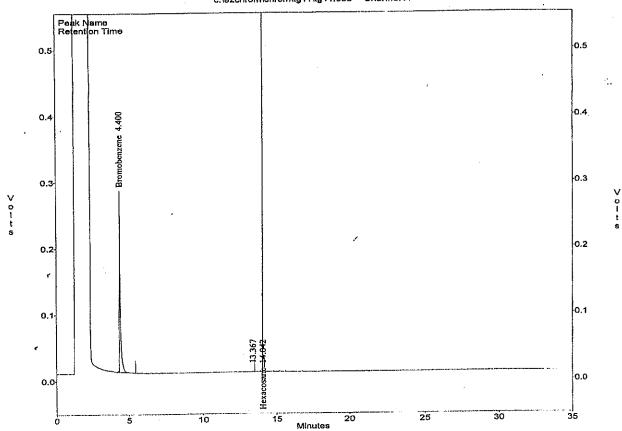
Acquired : Jul 13, 2005 04:10:49
Printed : Jul 13, 2005 09:51:04

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	EST	D Conc.	(mqq)
1.	Bromobenzene	4.400	. 1321	.335 16597	.4 -		79.6
	Hexacosane	14.042	841	109 31504	.4 -	. ~	26.7
-	Diesel (TOTAL)	•		982 25205	.2 .		0.1
_	Diesel(C10-C24)		1	982 25139	.0 .		0.1
	Diesel (C10-C28)		1	982 25150	.4 ,		0.1

c:\ezchrom\chrom\tg11\tg11.060 -- Channel A





Client : SES-TECH Date Collected: 07/11/05 Date Received: 07/11/05 Date Extracted: 07/12/05 12:00 Date Analyzed: 07/13/05 06:16 Dilution Factor: 1 Matrix : SOIL Ext Btch ID: DSG008S % Moisture Calib. Ref.: TG11058A Instrument ID : GCT050 RESULTS MDL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.7 SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 65-135 : Reporting Limit Parameter H-C Range Diesel C10-C24 Spike QC Limit QC Limit SURR 0.25 mg/L 63-165% 25 mg/kg 65-135% : Hexacosane 63-165% Water 65-135% Soil 65-135%



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.063
Method : c:\ezchrom\methods\ds50c31.met /

Sample ID : 05G055-09

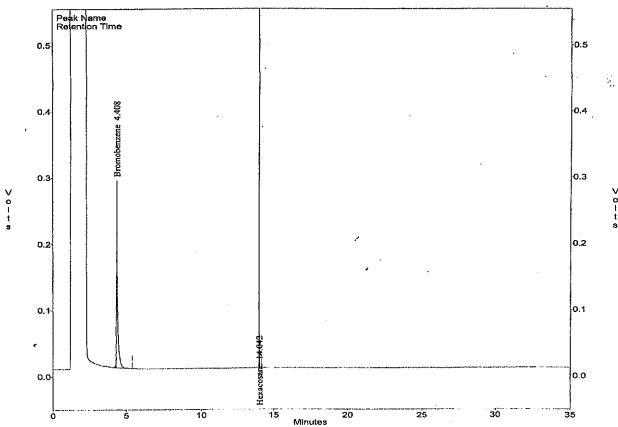
Acquired : Jul 13, 2005 06:16:28 Printed : Jul 13, 2005 09:52:33

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	4.408	. 1361303	16597.4	82.0
2	Hexacosane	14.042	829295	31504.4	26.3
G1	Diesel (TOTAL)	•	0	25205.2	. 0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel (C10-C28)		0	25150.4	0.0

c:\ezchrom\chrom\tg11\tg11.063 -- Channel A





Client : SES-TECH Project : CAMP PENDLE Batch No. : 05G055 Sample ID: 0003-017 Lab Samp ID: G055-10 Lab File ID: TG11064A Ext Btch ID: DSG008S Calib. Ref.: TG11058A			Date Coll	acted: 07/1 lyzed: 07/1 actor: 1 : SOIL : 12.3 ID : GCTO	1/05 1/05 2/05 12:00 3/05 06:58
PARAMETERS		RES	SULTS	RL j/kg)	MDL (mg/kg)
DIESEL		- "	ND	11	5.7
SURROGATE PARAMETERS HEXACOSANE		% RECO		LIMIT 5-135	
RL : Reporting Limit Parameter H-C Range Diesel C10-C24					
SURR : Hexacosane	Water Soil	0.25 mg/L	QC Limit 63-165% 65-135%	65-135%	



.. METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.064
Method : c:\ezchrom\methods\ds50c31.met

Sample ID : 05G055-10

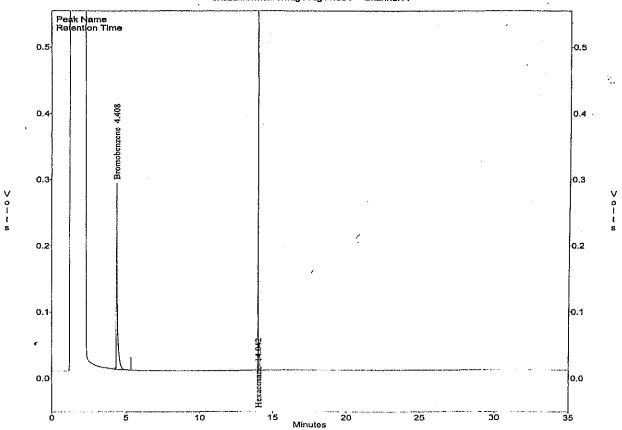
Acquired : Jul 13, 2005 06:58:19 Printed : Jul 13, 2005 09:52:48

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzene	4.408	1278581	16597.4	- 77.0
2	Hexacosane	14.042	808690	31504.4	25.7
G1	Diesel (TOTAL)	, ,	0	25205.2	- 0.0
G2	Diesel(C10-C24)		0	25139.0	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0

c:\ezchrom\chrom\tg11\tg11.064 -- Channel A





Client : SES-TECH Date Collected: 07/11/05

Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G055
Sample ID: 0003-018
Lab Samp ID: G055-11 Date Received: 07/11/05
Date Extracted: 07/12/05 12:00
Date Analyzed: 07/13/05 07:40 Dilution Factor: 1

Lab File ID: TG11065A Matrix : SOIL % Moisture : 12.3 Ext 8tch ID: DSG008S Calib. Ref.: TG11058A Instrument ID : GCT050

RESULTS MDL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL ND 5.7

SURROGATE PARAMETERS % RECOVERY QC LIMIT ------HEXACOSANE 103 65-135

RL : Reporting Limit Parameter H-C Range Diesel C10-C24

Spike QC Limit QC Limit 0.25 mg/L 63-165% 25 mg/kg 65-135% : Hexacosane Water 65-135%

Soil 65-135%



Page 1 of 1

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.065
Method : c:\ezchrom\methods\ds50c31.met

Sample ID : 05G055-11

Acquired : Jul 13, 2005 07:40:12 Printed : Jul 13, 2005 09:53:40

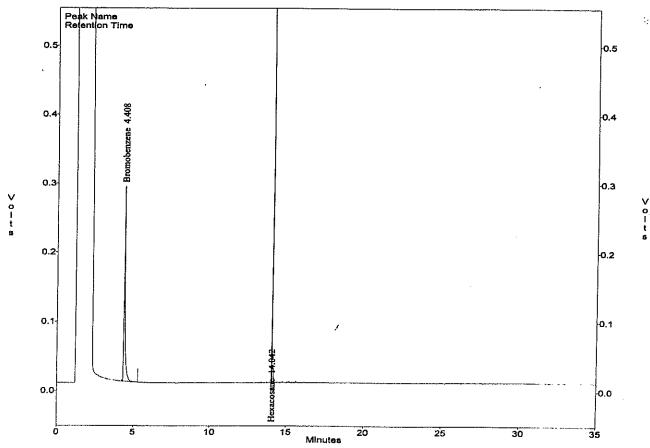
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	A	rea	Ave. CF	ESTD	Conc. (ppm)

1	Bromobenzene	4.408	-	1304219	16597.4		78.6
2	Hexacosane	14.042	•	807450	31504.4		25.6
G1	Diesel(TOTAL)			0	25205.2		0.0
G2	Diesel(C10-C24)			0	25139.0	,	0.0
G3	Diesel(C10-C28)			0	25150.4		0.0

c:\ezchrom\chrom\tg11\tg11.085 - Channel A





Client :	SES-TECH					==		======================================	
Project : Batch No. : Sample ID: Lab Samp ID: Lab File ID: Ext Btch ID: Calib. Ref.:	CAMP PENDLE 05G055 0003-019 G055-12 TG11066A DSG008S TG11058A	,			Date Date Dilut Matri; % Mois	Rece Extra Anali ion Fa K Sture	ived: cted: yzed: ctor:	SOIL 8.0 CCT050	12:00 08:22
PARAMETERS				RESI	JLTS		RL		MDL
				(High	/kg)	(mg/	Kg)	(n	ng/kg)
DIESEL					ND		11		5.4
SURROGATE PAR HEXACOSANE				% RECOV	/ERY 102		LIMIT 		
RL : Rep Parameter Diesel	H-C Range								
SURR : Hex	acosane	Water Soil	0.2	ike 25 mg/L 25 mg/kg		55%		35%	



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

: c:\ezchrom\chrom\tg11\tg11.066 : c:\ezchrom\methods\ds50c31.met File Method

Sample ID : 05G055-12

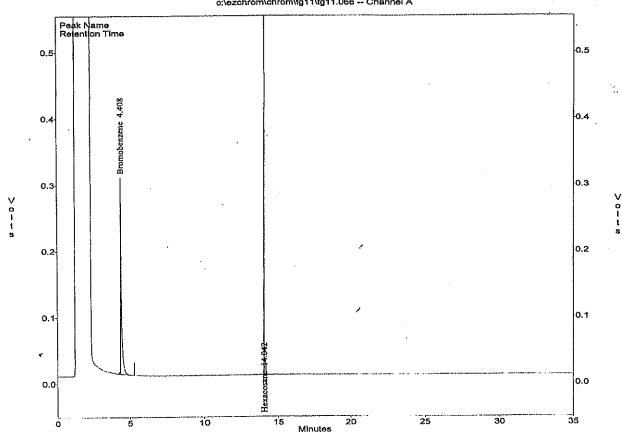
: Jul 13, 2005 08:22:05 : Jul 13, 2005 09:53:55 Acquired Printed

: JANE User

Channel A Results

# .	Peak Name	Ret Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	4.408	1349016	16597.4	- 81.3
2	Hexacosane	14.042,-	800973	31504.4	. 25.4
G1	Diesel (TOTAL)		0	25205.2	
G2	Diesel(C10-C24)		0	25139.0	0.0
	Diesel(C10-C28)		0	25150.4	. 0.0

c:\ezchrom\chrom\tg11\tg11.066 -- Channel A





		=======		========	=========	
Client Project Batch No. Sample ID Lab Samp ID Lab File ID Ext Btch ID Calib. Ref.	: SES-TECH : CAMP PENDLET : 05G055 : 0003-020 : G055-13 : TG11086A : DSG009S : TG11082A	FOH, UST	SITE 16144	Date Coll Date Rec Date Extri Date Ans Dilution For Matrix % Moisture Instrument	eived: 07/1 acted: 07/1 lyzed: 07/1 sctor: 1 : SOIL : 3.7	1/05 2/05 12:00 3/05 22:24
********	BS===BSS==BB==	=======		=======================================		
PARAMETERS				SULTS g/kg) (mg	RL I/kg)	MDL (mg/kg)
DIESEL				11 /	10	5.2
SURROGATE P.			% REC		LIMIT 5-135	
	eporting Limit H-C Range C10-C24					,
SURR : He	exacosane	Water Soil	0.25 mg/L	QC Limit 63-165% 65-135%	65-135%	



.. METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

: c:\ezchrom\chrom\tg11\tg11.086
: c:\ezchrom\methods\ds50c31.met File Method

Sample ID : 05G055-13

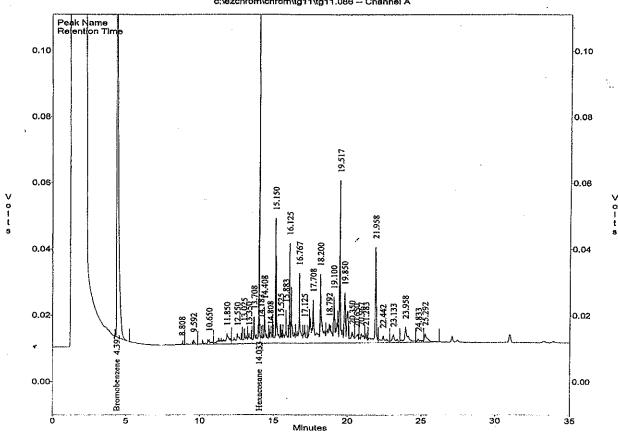
: Jul 13, 2005 22:24:49 : Jul 14, 2005 09:11:36 Acquired Printed

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Aı	rea	Ave. CF	ES'	TD Conc. (ppm)
1	Bromobenzene	4.392	-	1378311	16597.4		83.0
10	Hexacosane	14.033	/	802562	31504.4		25.5
G1	Diesel (TOTAL)	•		2502882	25205.2	-	99.3
G2	Diesel (C10-C24)			259173	25139.0	•	10.3
G3	Diesel(C10~C28)			447177	25150.4	-	17.8

c:\ezchrom\chrom\tg11\tg11.086 -- Channel A



5016A



Client : SES-TECH Date Collected: 07/11/05 Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 056055 Date Received: 07/11/05 Date Extracted: 07/12/05 12:00 Sample ID: 0003-021 Lab Samp ID: G055-14 Lab File ID: TG11087A Ext Btch ID: DSG009S Date Analyzed: 07/13/05 23:06 Dilution Factor: 1 Matrix Matrix : SOIL % Moisture : 2.1 Calib. Ref.: TG11082A Instrument ID : GCT050 RESULTS

MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) -------DIESEL 10 5.1 SURROGATE PARAMETERS % RECOVERY QC LIMIT -----------

HEXACOSANE 106 : Reporting Limit Parameter H-C Range

C10-C24

Diesel

QC Limit QC Limit Spike SURR : Hexacosane Water 63-165% 65-135%

0.25 mg/L 25 mg/kg Soil 65-135% 65-135%

65-135

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

: c:\ezchrom\chrom\tg11\tg11.087 File : c:\ezchrom\methods\ds50c31.met Method

Sample ID : 05G055-14

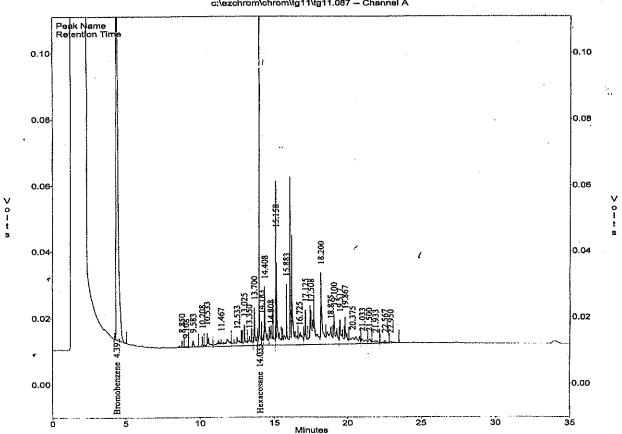
: Jul 13, 2005 23:06:57 : Jul 14, 2005 09:36:30 Acquired Printed

: JANE User

Channel A Results

#.	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	4.392 <i>¹</i>	1416488	16597.4 -	85.3
12	Hexacosane	14.033 ~	832677	31504.4 -	26.4
G1	Diesel (TOTAL)	1	1956327	25205.2 ^	77.6
G2	Diesel(C10-C24)		254588	25139.0 ^	10.1
G3	Diesel(C10-C28)		473844	25150.4 4	18.8

c:\ezchrom\chrom\tg11\tg11.087 - Channel A



5017A



#26227728627284268 <u>2</u>	=======				
Client : SES-TECH Project : CAMP PENDLE Batch No. : 05G055 Sample ID: 0003-022 Lab Samp ID: G055-15 Lab File ID: TG11088A Ext Btch ID: DSG0098 Calib. Ref.: TG11082A	TON, UST		Date Collo Date Reco Date Extri Date Anal Dilution Fa Matrix % Moisture Instrument	eived: 07/ acted: 07/ lyzed: 07/ lector: 1 : SOIL : 2.5	11/05 12/05 12:00 13/05 23:48
					=========
PARAMETERS			ULTS /kg) (mg	RL /kg)	MDL (mg/kg)
DIESEL		į.	ND	10	5.1
SURROGATE PARAMETERS HEXACOSANE		% RECOV		LIMIT 5-135	
RL: Reporting Limit Parameter H-C Range Diesel C10-C24			•		
SURR : Hexacosane	Water Soil	Spike 0.25 mg/L 25 mg/kg	QC Limit 63-165% 65-135%	65-135%	



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

: c:\ezchrom\chrom\tg11\tg11.088
: c:\ezchrom\methods\ds50c31.met File Method

Sample ID

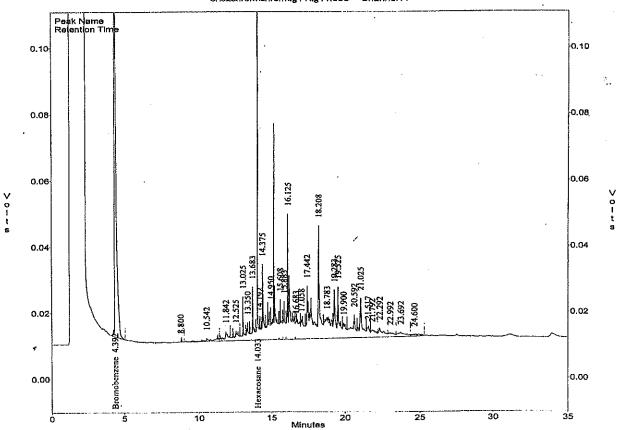
: 05G055-15 : Jul 13, 2005 23:48:59 : Jul 14, 2005 09:37:49 Acquired Printed

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
1	Bromobenzeńe	4.392	- 1336173	16597.4	. 80.5
9	Hexacosane	14.033	861038	31504.4	. 27.3
G1	Diesel (TOTAL)	•	3098859	25205.2	. 122.9
G2	Diesel (C10-C24)		247385	25139.0	
G3	Diesel(C10-C28)		879959	25150.4	35.0

c:\ezchrom\chrom\tg11\tg11.088 - Channel A



5018A



	5382222222222		
Client: SES-TECH Project: CAMP PENDLETON, UST: Batch No.: 05G055 Sample ID: 0003-023 Lab Samp ID: G055-16 Lab File ID: TG11074A Ext Btch ID: DSG0095 Calib. Ref.: TG11070A	Date Date Date Date Date Dilut Matrix A Mois	Collected: Received: Extracted:	07/11/05 07/12/05 12:00 07/13/05 13:57 1 SOIL 11.0 GCT050
PARAMETERS DIESEL	RESULTS (mg/kg) ND	RL (mg/kg) 11	MDL (mg/kg) 5.6
SURROGATE PARAMETERS HEXACOSANE	% RECOVERY	QC LIMIT	2.0
RL : Reporting Limit Parameter H-C Range Diesel C10-C24			

SURR

: Hexacosane

Water Soil
 Spike
 QC Limit
 QC Limit

 0.25 mg/L
 63-165%
 65-135%

 25 mg/kg
 65-135%
 65-135%



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.074
Method : c:\ezchrom\methods\de50c31.met

Sample ID : 05G055-16

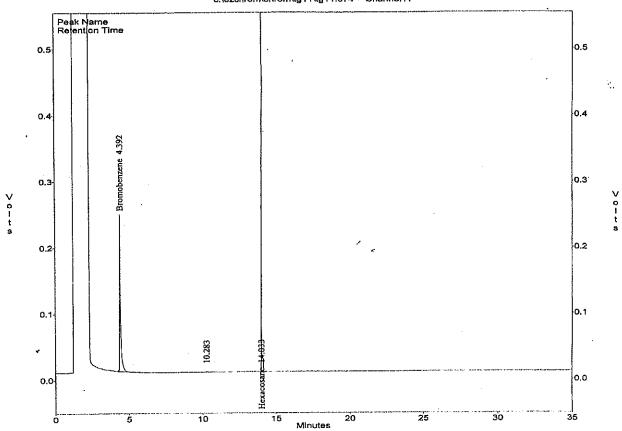
Acquired : Jul 13, 2005 13:57:47
Printed : Jul 14, 2005 09:02:06

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	4.392 ,	1035256	16597.4	62.4
3	Hexacosane	14.033 -	754720	31504.4	. 24.0
Gl	Diesel (TOTAL)	1	10974	25205.2	
G2	Diesel(C10-C24)		10974	25139.0	- 0.4
G3	Diesel(C10-C28)	•	10974	25150.4	0.4

c:\ezchrom\chrom\tg11\tg11.074 -- Channel A





22555555555555555555555555555555555555	=======	2252====22	========	B##==##===	
Client : SES-TECH Project : CAMP PENDLET Batch No. : 05G055 Sample ID: 0003-024 Lab Samp ID: G055-17 Lab File ID: TG11075A Ext Btch ID: DSG009S Calib. Ref.: TG11070A		16144	Date Collec Date Recei Date Extrac Date Analy Dilution Fac Matrix % Moisture Instrument II	ved: 07/11/0 ted: 07/12/0 zed: 07/13/0 tor: 1 : SOIL : 7.9)5 5 12:00
PARAMETERS	- C - C - C - C - C - C - C - C - C - C	RESUI (mg/l		RL (g)	MDL (mg/kg)
DIESEL		NE)	11	5.4
SURROGATE PARAMETERS HEXACOSANE		% RECOVE		.IMIT -135	
RL: Reporting Limit Parameter H-C Range Diesel C10-C24					
SURR : Hexacosane	Water 0.		63-165%	9C Limit 65-135% 65-135%	



.. METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tgl1\tgl1.075
Method : c:\ezchrom\methods\ds50c31.met -

Sample ID : 05G055-17

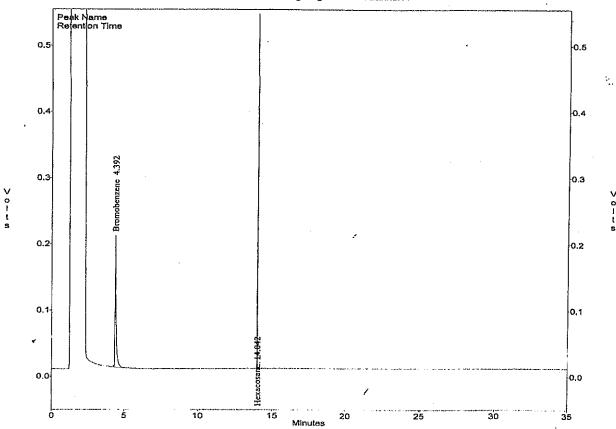
Acquired : Jul 13, 2005 14:39:47 Printed : Jul 14, 2005 09:02:31

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Are	a	Ave. CF	ESTD Conc	. (ppm)
1	Bromobenzene	4.392	•	999166	16597.4 -		60.2
2	Hexacosane	14.042	•	725862	31504.4	•	23.0
	Diesel(TOTAL)	•		0	25205.2 -		0.0
	Diesel (Cl0-C24)			0	25139.0 -		0.0
G3	Diesel(Cl0-C28)			0	25150.4		0.0

c:\ezchrom\chrom\tg11\tg11.075 -- Channel A





	SES-TECH	Date Collected: 07/11	1/05
Project :	CAMP PENDLETON, UST SITE 16144	Date Received: 07/11	
Batch No.	05G055	Date Extracted: 07/12	
Sample ID:	0003-025	Date Analyzed: 07/13	
ab Samp ID:	G055-18	Dilution Factor: 1	703 13.21
ab File ID:	TG11076A	Matrix : SOIL	
ext Stch ID:	DSG009S	% Moisture : 15.4	
Calib. Ref.:	TG11070A	Instrument ID : GCT05	in

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	5.9
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	

102

65-135

RL : Reporting Limit	HEAMO	SARC
Diesel C10-C24	Parame	ter H-C Range

			Spike	QC Limit	QC Limit
SURR	: Hexacosane	Water	0.25 mg/L	63 - 165%	65-135%
		Soil	25 mg/kg	65-135%	65-135%



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.076
Method : c:\ezchrom\methods\ds50c31.met -

Sample ID : 05G055-18

Acquired : Jul 13, 2005 15:21:47 Printed : Jul 14, 2005 09:02:52

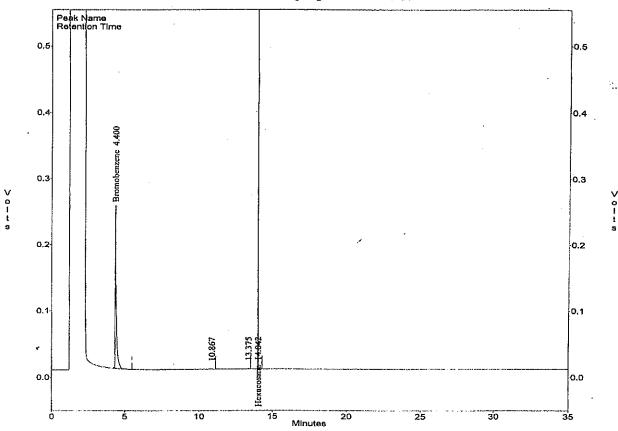
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)

1	Bromobenzene	4.400 ·	1238046	16597.4	74.6
4	Hexacosane	14.042	803727	31504.4	25.5
	Diesel(TOTAL)	,	8127	25205.2	. 0.3
	Diesel(C10-C24)		8127	25139.0	0.3
G3	Diesel (C10-C28)		8127	25150.4	- 0.3

c:\ezchrom\chrom\tg11\tg11.076 - Channel.A





Client : SES-TECH Date Collected: 07/11/05 Project : CAMP PENDLETON, UST SITE 16144 Batch No. : 05G055 Sample ID: 0003-026 Date Received: 07/11/05 Date Extracted: 07/12/05 12:00 Date Analyzed: 07/13/05 16:04 Lab Samp ID: G055-19 Dilution Factor: 1 Lab File ID: TG11077A : SOIL Matrix Ext Btch ID: DSG0098 : 13.5 % Moisture Calib. Ref.: TG11070A Instrument ID : GCT050 RESULTS

MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 12 5.8 SURROGATE PARAMETERS % RECOVERY QC LIMIT ------

: Reporting Limit Parameter H-C Range Diesel C10-C24

HEXACOSANE

Spike QC Limit QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135%

25 mg/kg Soil 65 - 135% 65-135%

100

65-135



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

: c:\ezchrom\chrom\tg11\tg11.077
: c:\ezchrom\methods\ds50c31.met
: 05G055-19 File Method

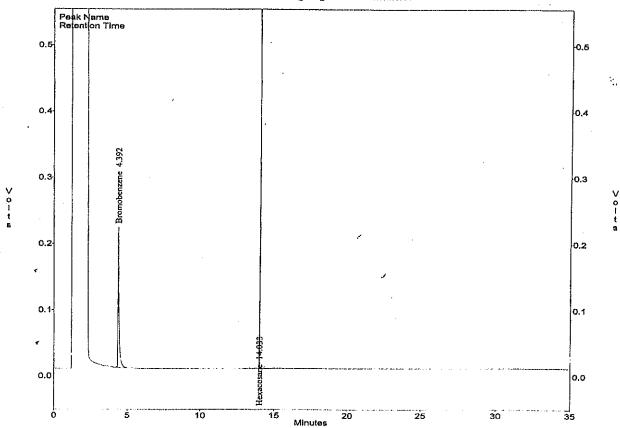
Sample ID

: Jul 13, 2005 16:04:00 : Jul 14, 2005 09:03:12 Acquired Printed

User : JANE Channel A Results

#	Peak Name	Ret.Time(Min)	A	rea	Ave. CF	ESTD	Conc.	(ppm)
			-					,
1	Bromobenzerie	4.392	-	1074366	16597.4.			64.7
	Hexacosane	14.033	1	788464	31504.4 1		•	25.0
	Diesel (TOTAL)	'		0	25205.2 1			0.0
	Diesel (C10-C24)			0	25139.0	•		0.0
G3	Diesel (C10-C28)			0	25150.4	-		0.0

c:\ezchrom\chrom\tg11\tg11.077 -- Channel A





Client : SES-TECH Date Collected: 07/11/05 Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G055
Sample ID: 0003-027 Date Received: 07/11/05 Date Extracted: 07/12/05 12:00 Date Analyzed: 07/13/05 16:46 Lab Samp ID: G055-20 Dilution Factor: 1 Lab File ID: TG11078A : SOIL : 10.5 Matrix Ext Btch ID: DSG0095 % Moisture Calib. Ref.: TG11070A Instrument ID : GCT050 RESULTS MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL 13 11 5.6 SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 104 65-135 : Reporting Limit er H-C Range Parameter Diesel C10-C24 Spike QC Limit QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135%

25 mg/kg 65-135%

Soil

65-135X



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

: c:\ezchrom\chrom\tg11\tg11.078 : c:\ezchrom\methods\ds50c31.met File Method

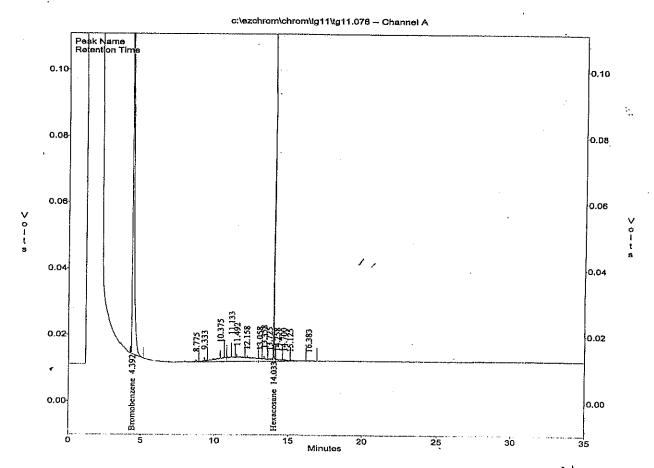
Sample ID

: 05G055-20 : Jul 13, 2005 16:46:14 : Jul 14, 2005 09:04:12 Acquired Printed

User : JANE

Channel A Results

# `	Peak Name	Ret.Time(Min)	7	rea	Ave. CF	ESTD Co	nc. (ppm)
			-				
	Bromobenzene	4.392	-	1128938	16597.4		68.0
11.	Hexacosane	14.033	-	816609	31504.4		. 25.9
G1	Diesel (TOTAL)	•		324718	25205.2		12.9
G2	Diesel(C10-C24)			285666	25139.0 -		11.4
G3	Diesel (Clo-C28)			309851	25150.4		12.3





G88425274662574575452762278885777888777888577788857778885777888 Client : SES-TECH Date Collected: 07/11/05 Batch No. : 056055
Sample ID: 0003-028
Lab Samp ID: G055-21 Date Received: 07/11/05 Date Extracted: 07/12/05 12:00 Date Analyzed: 07/13/05 17:28 Dilution Factor: 1 Lab File ID: TG11079A Matrix : SOIL : 10.7 Ext Btch ID: DSG009S

% Moisture Calib. Ref.: TG11070A Instrument ID : GCT050

RESULTS MOL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL ND 5.6

SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 100 65-135

: Reporting Limit Parameter H-C Range Diesel C10-C24

Spike QC Limit QC Limit SURR 0.25 mg/L 63-165% 25 mg/kg 65-135% : Hexacosane Water 63-165% 65-135% Soil

65-135%

.. METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.079
Method : c:\ezchrom\methods\ds50c31.met

Sample ID : 05G055-21

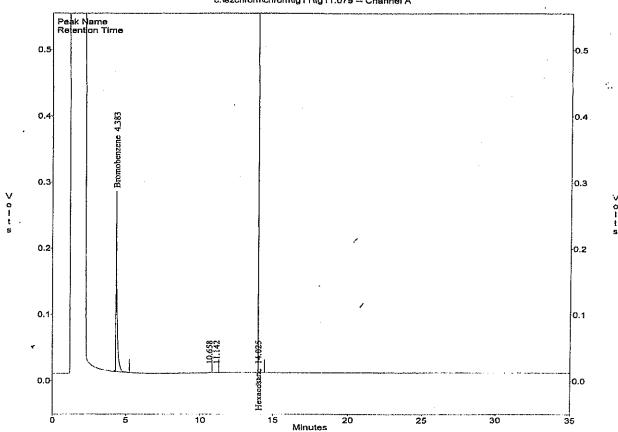
Acquired : Jul 13, 2005 17:28:29 Printed : Jul 14, 2005 09:05:29

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	4.383	,,,,,,	16597.4	76.8
4	Hexacosane	14.025	789979	31504.4	25.1
G1	Diesel(TOTAL)	•	8078	25205.2	. 0.3
G2	Diesel(C10-C24)		8078	25139.0	. 0.3
G3	Diesel(Cl0-C28)		8078	25150.4	0.3

c:\ezchrom\chrom\tg11\tg11.079 -- Channel A





Client : SES-TECH Date Collected: 07/11/05 Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G055
Sample ID: 0003-029 Date Received: 07/11/05 Date Extracted: 07/12/05 12:00 Date Analyzed: 07/13/05 20:18 Lab Samp ID: G055-22 Dilution Factor: 1 Lab File ID: TG11083A : SOIL : 7.2 Matrix Ext Btch ID: DSG0098 % Moisture Calib. Ref.: TG11082A Instrument ID : GCT050 **RESULTS** RL MDL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.4 SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 97 65-135 : Reporting Limit er H-C Range Parameter Diesel C10-C24 Spike QC Limit QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135% Soil 25 mg/kg 65-135% 65-135%



Page 1 of 1

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.083
Method : c:\ezchrom\methods\ds50c31.met

Sample ID : 05G055-22

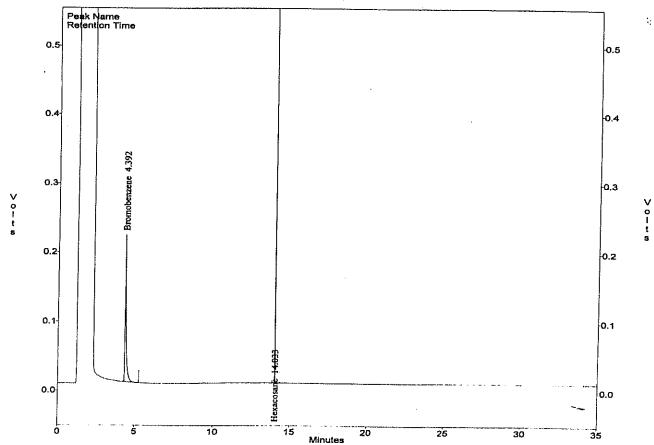
Acquired : Jul 13, 2005 20:18:10 Printed : Jul 14, 2005 09:07:15

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	4.392-	1090853	16597.4	65.7
2	Hexacosane	14.033	766769	31504.4	24.3
G1	Diesel (TOTAL)		0	25205.2 °	0.0
G2	Diesel(Cl0-C24)		0	25139.0	
G3	Diesel (C10-C28)		0	25150.4	

c:\ezchrom\chrom\tg11\tg11.083 -- Channel A





Client : SES-TECH Date Collected: 07/11/05 : CAMP PENDLETON, UST SITE 16144 Project Date Received: 07/11/05
Date Extracted: 07/12/05 12:00 Batch No. : 05G055 Sample ID: 0003-030 Lab Samp ID: G055-23 Date Analyzed: 07/13/05 18:11 Dilution Factor: 1 Lab File ID: TG11080A

: SOIL Matrix Ext Btch ID: DSG009s % Moisture : 10.9 Calib. Ref.: TG11070A Instrument ID : GCTO50

RESULTS RL MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.6

SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 97 , 65-135

: Reporting Limit ter H-C Range Parameter Diesel C10-C24

QC Limit 65-135% Spike QC Limit : Hexacosane Water 0.25 mg/L 25 mg/kg 63-165%

Soil 65-135% 65-135%



METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg11\tg11.080
Method : c:\ezchrom\methods\ds50c31.met .

Sample ID : 05G055-23

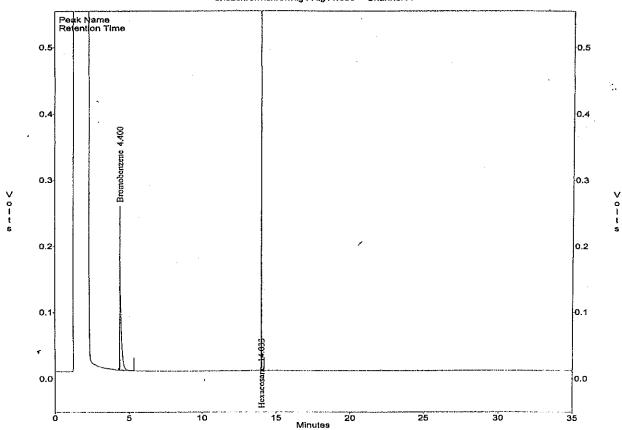
Acquired : Jul 13, 2005 18:11:09 Printed : Jul 14, 2005 09:05:58

User : JANE

Channel A Results

#'	Peak Name	Ret.Time(Min)	Area		Ave. CF	ESTD Conc. (ppm)
	~~~~~~~~~~~~~~~~					
1	Bromobenzene	4.400	•	1151054	16597.4	69.4
2	Hexacosane	14.033	-	764015	31504.4 -	. 24.3
G1	Diesel (TOTAL)	•		0	25205.2	0.0
G2	Diesel(Cl0-C24)			0	25139.0 -	0.0
G3	Diesel (Clo-C28)			0	25150.4	0.0

#### c;\ezchrom\chrom\tg11\tg11.080 - Channel A





Client : SES-TECH					=======================================
Project : CAMP PEN Batch No. : 05g055 Sample ID: 0003-031 Lab Samp ID: G055-24 Lab File ID: TG11081A Ext Btch ID: D5G009S Calib. Ref.: TG11070A	DLETON, UST	SITE 16144	Date Extra Date Ana- Dilution Fa Matrix % Moisture	eived: 07/ acted: 07/ lyzed: 07/ actor: 1 : SOII : 9.7	11/05 12/05 12:00 13/05 18:53
======================================		=======================================	Instrument	ID : GCT(	)50 ========
PARAMETERS		RES	ULTS /kg) (mg	RL	MDL (mg/kg)
DIESEL			₩D	11	5.5
SURROGATE PARAMETERS HEXACOSANE			VERY QC	LIMIT 5-135	
RL : Reporting Li Parameter H-C Ra Diesel C10-C2	nge				
SURR : Hexacosane	Water Soil	Spike 0.25 mg/L 25 mg/kg	QC Limit 63-165% 65-135%	QC Limit 65-135% 65-135%	



# METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

: c:\ezchrom\chrom\tgl1\tgl1.081 : c:\ezchrom\methods\ds50c31.met File Method

Sample ID

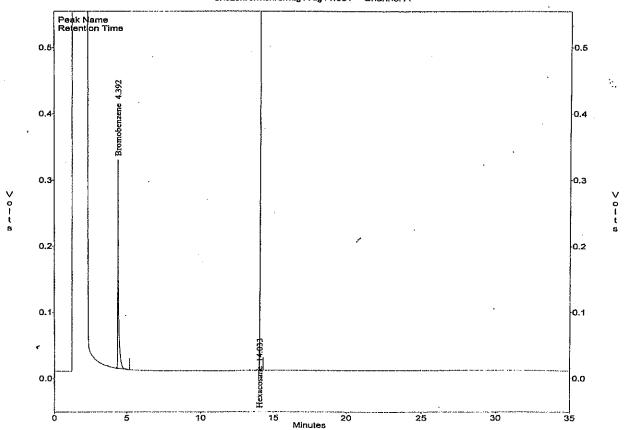
: 05G055-24 : Jul 13, 2005 18:53:27 : Jul 14, 2005 09:06:24 : JANE Acquired Printed

User

#### Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobénzene	4.392	1347660	16597.4	81.2
2	Hexacosane	14.033~	811116	31504.4	25.7
G1	Diesel (TOTAL)	•	0	25205.2	0.0
G2	Diesel(C10-C24)		0	25139.0 -	0.0
G3	Diesel(C10-C28)		0	25150.4	0.0

#### c:\ezchrom\chrom\tg11\tg11.081 -- Channel A





# QC SUMMARIES



	=========	=======	######################################	===========	
Client : SES-TECH			Date Colle	cted: NA	
Project : CAMP PENDLE	TON, UST SITE		Date Rece		/05
Batch No. : 05G055	•		Date Extra		
Sample ID: MBLK1S			Date Anal		
Lab Samp ID: DSG008SB			Dilution Fa		
Lab File ID: TG11052A			Matrix	: SOIL	
Ext Btch ID: DSG008S			% Moisture		-
Calib. Ref.: TG11045A			Instrument		0
22222222222222222222222222	=========				
		RESUI	LTS	RL	MDL
PARAMETERS		(mg/l	(g) (mg,	'kg)	(mg/kg)
****					*****
DIESEL		NE	)	10	5
SURROGATE PARAMETERS		% RECOVE	RY QC	LIMIT	
HEVA BOOME					
HEXACOSANE		11	11 65	i~135	
DI Danaman I to I a			,		
RL: Reporting Limit Parameter H-C Range			-		
	•				
Diesel C10-C24	•		00 1 114		
SURR : Hexacosane			QC Limit		
sonn : nexacosane			63-165%		
	Soil	25 mg/kg	65-135%	65 - 135%	



#### EMAX QUALITY CONTROL DATA LCS ANALYSIS

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

BATCH NO .:

05G055

METHOD; ------ METHOD 35508/80158

MATRIX: SOIL

% MOISTURE:

NA

DILUTION FACTOR: 1 SAMPLE ID:

MBLK1S

LAB SAMP ID: LAB FILE ID: DSG008SB DSG008SL TG11052A

TG11053A

07/12/0512:00 07/12/0512:00 07/12/0522:35 07/12/0523:17

DATE COLLECTED: NA

DATE EXTRACTED: DATE ANALYZED: PREP. BATCH:

DSG008s TG11045A DSG008S TG11045A

DATE RECEIVED: 07/12/05

CALIB. REF: ACCESSION:

BLNK RSLT (mg/kg)

SPIKE AMT (mg/kg)

BS RSLT (mg/kg)

BS QC LIMIT % REC (%)

PARAMETER Diesel

Hexacosane

ND

500

560

112 65-135

SURROGATE PARAMETER

SPIKE AMT (mg/kg)

BS RSLT (mg/kg)

BS QC LIMIT % REC (%)

25 26.9 107 65-135



: SES-TECH Date Collected: NA Project : CAMP PENDLETON, UST SITE 16144 Date Received: 07/12/05 Batch No. : 05G055 Sample ID: MBLK2S Date Extracted: 07/12/05 12:00 Date Analyzed: 07/13/05 13:15 Lab Samp ID: DSG009SB Dilution Factor: 1 : SOIL Lab File ID: TG11073A Matrix % Moisture : NA Instrument ID : GCT050 Ext Btch ID: DSG0095 Calib. Ref.: TG11070A RL. RESULTS PARAMETERS (mg/kg) (mg/kg) (mg/kg) ......... DIESEL 10 ND SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 107 65-135 : Reporting Limit er H-C Range Parameter Diesel C10-C24 Spike QC Limit QC Limit SURR 0.25 mg/L : Hexacosane Water 63-165% 65-135% 25 mg/kg 65-135% 65-135% Soil



#### EMAX QUALITY CONTROL DATA LCS ANALYSIS

CLIENT:

PROJECT:

BATCH NO.:

SES-TECH CAMP PENDLETON, UST SITE 16144

METHOD:

METHOD 3550B/8015B

MATRIX: DILUTION FACTOR: 1 SAMPLE ID:

LAB SAMP ID:

LAB FILE ID:

SOIL .

DSG009SL

TG11072A

1

MBLK2S

DSG009SB

TG11073A

DATE EXTRACTED: 07/12/0512:00 07/12/0512:00
DATE ANALYZED: 07/13/0513:15
PREP. BATCH: DSG009S DSG009S DSG009S TG11070A

TG11070A

CALIB. REF: ACCESSION:

PARAMETER

Diesel

BLNK RSLT SPIKE AMT (mg/kg) (mg/kg) ND

BS RSLT (mg/kg) 500 555

% MOISTURE:

DATE COLLECTED: NA DATE RECEIVED: 07/12/05

> % REC (%)

65-135

QC LIMIT

NA

SURROGATE PARAMETER Hexacosane

SPIKE AMT BS RSLT (mg/kg) (mg/kg) 25 27.8

QC LIMIT % REC 111

(%) 65-135



#### EMAX QUALITY CONTROL DATA MS/MSD ANALYSIS

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

BATCH NO.:

05G055

METHOD:

METHOD 35508/80158

MATRIX: SOIL

DILUTION FACTOR: 1

% MOISTURE: 6.2

SAMPLE ID: LAB SAMP ID: 0003-015

G055-08 TG11060A G055-08M TG11061A

G055-08\$ TG11062A

1

LAB FILE ID: DATE EXTRACTED: DATE ANALYZED:

07/12/0512:00 07/12/0512:00 07/13/0504:10 07/13/0504:52

SPIKE AMT

07/12/0512:00 07/13/0505:34 DSG008S

DATE COLLECTED: 07/11/05 DATE RECEIVED: 07/11/05

PREP. BATCH: CALIB. REF:

DSG008S

TG11058A

DSG008S TG11058A

TG11058A

ACCESSION:

PARAMETER

SMPL RSLT SPIKE AMT MS RSLT (mg/kg) (mg/kg)

MS (mg/kg) % REC 540

SPIKE AMT (mg/kg) 533 MSD RSLT MSD (mg/kg) 567

RPN QC LIMIT MAX RPD % REC (%) (%) 106 5

(%) 65-135

35

Diesel

ND 533 101

MSD RSLT

28

MSD QC LIMIT (%)

SURROGATE PARAMETER Hexacosane

(mg/kg) (mg/kg) 26.7 27.4

MS RSLT

103

MS

% REC

(mg/kg) 26.7

SPIKE AMT

(mg/kg)

% REC 105

65-135



#### EMAX QUALITY CONTROL DATA MS/MSD ANALYSIS

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

BATCH NO.:

05G055

METHOD:

METHOD 3550B/8015B

MATRIX: SOIL DILUTION FACTOR:

% MOISTURE:

7.2

SAMPLE ID: LAB SAMP ID:

0003-029

G055-22 TG11083A G055-22M TG11084A

G055-22S

LAB FILE ID: DATE EXTRACTED: DATE ANALYZED:

07/12/0512:00 07/12/0512:00 07/13/0520:18

07/13/0521:00

TG11085A 07/12/0512:00 07/13/0521:42 DSG009S

DATE COLLECTED: 07/11/05 DATE RECEIVED: 07/11/05

PREP. BATCH: CALIB. REF:

DSG009s TG11082A

DSG0098 TG11082A

TG11082A

ACCESSION:

PARAMETER Diesel

SMPL RSLT SPIKE AMT (mg/kg) (mg/kg) ND

MS RSLT (mg/kg) 567

MS SPIKE AMT % REC (mg/kg) 105

MSD RSLT (mg/kg) 588

MSD RPD % REC (%) 109

QC LIMIT MAX RPD (%) (%)

65-135

539 

SURROGATE PARAMETER Hexacosane

SPIKE AMT MS RSLT (mg/kg) (mg/kg) 26.9 27.7

MS % REC 103

SPIKE AMT (mg/kg) 26.9

MSD RSLT MSD (mg/kg) % REC 27.5

(%)

65-135

QC LIMIT

TRA TECH
1230 Columbia Street, Suite 540
Sen Diego, CA 92101 (619) 234-6496

NUMBER 12428 CHAIN-OF-CUSTODY RECORD

IST A. T. Column		PURCHASE ORDER NO.	DER NO.			AN	ALYSES	ANALYSES REQUIRED	Q	LABORATORY NAME			
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PROJECT CONTACT SECULORISM		PROJECT CONTACT PHONE NUMBER	ACT PHONE NUMBER  156-1150-0	高いこの		78 5	\$ 75			OSGED LA G	Laboratory	atory	
SAMPLE ID	DATE	TIME COLLECTED	HO. OF CONTAINER	LEVEL Y	F 4 I	XI/				COMMENTS	Sy 175 LOCATION	DEPTTH	8
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030	3445	1025				4					V-17	000	55 S
	71010						1				S-S	7) ? (?)	105 R.B.
17 250	1.11.5			1 2		+				-	Ϋ́ ~	30.2	(5,5 kg
	2 2 7		-		1-			1		* * * * * *	18-13	27.03	12. 12.
		_		); 		+			7		*\\-\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	3CC255	700 200
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	1							DRUNEN	i				

White I shorstom Dial. 1 - 1

NUMBER 12427

2000

# CHAIN-OF-CUSTODY RECORD

TETRA TECH
1230 Columb Street, Sales 550
San Diego, CA 72101 (619) 234-1656

		Froject Information Section	Do not submit to Laboratory	SITE 16:14	LOCATION DEPTH QC	15.13 55.555 (2)			X				SAMPI ING COMMENT.	Can the Comment.				Company	
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1230 Columbia Street, Sale 500 San Divers, CA 72101 (619) 234-1656

# CHAIN-OF-CUSTODY RECORD

NUMBER 12426

200 2 23 გ ES. 1 12/1 25 VS S îv. Vi START END Project Information DEPTH Do not submit to 五<u>。</u> 10,0 形の 3 <u>ر</u> (ر Sec. Laboratory Section SIE BOR SAMPLING COMMENT: 0 LOCATION 0-M 9 10 10 NO 01-0 1) \frac{1}{2} (Y) (Y) 合物 1 50 190 950 SAMPLE CONDITION: [] INTACT [] BROKEN COMMENTS FINAX FOR LABORATORY) LABORATORY NAME ABORATORY ID SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) LABORATORY INSTRUCTIONS/COMMENTS CONTROL OF FOLLY 1970 THE CONTROL OF THE CONTROL ANALYSES REQUIRED D BROKEN D INTACT COMPOSITE DESCRIPTION つりてん  $\overline{\mathsf{SCO}}$ . TEMPERATURE: ____COOLER SEAL; ALTONIACT PHONE NUMBER LEVEL 4  $\times$ × ж. ..... -انز × フタフィーイングしろ NO. OF CONTAINER 1 す ţ RECEIVED BY (Signature) PURCHASE ORDER NO 7317.0 RECEIVED BY (Signature AIRBILL NUMBER LECEIVED BY (S) <u>7</u> TIME 105 223 シュロ V'. 不符 PROJECT NO. しませり . • ^ -143CA COMPANY COMPANY 1 60,00 1.21 1.16 Tills 20/11/ 11.40 DATE COLLECTED 17/2/2 DATE 12:5 が大人 ----はずいしろこう FIX TIME SAMPLER NAME Laran Brant KTSIE 1014 0000000 いとから W W なすがしなられ けつ かかり (B) 3900 0000-040 K C LELINQUISHED BY (Signature) ELINQUISHED BY (Signature) ELINQUISHED BY (Signature) SAMPLE ID 7 0,063 PROJECT LOCATION OMPANY 000% Sevela 67×3 OMPANY OMPANY

White I shorntown Bint, I .t ....





## **TABLE OF CONTENTS**

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

SDG:

05G064

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GC/MS-VOA	<b>★</b> ★	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	METHOD 3550B/8015B	5000 - 5063
HPLC	**	6000 —
METALS	**	7000 —
WET	**	8000 -
OTHERS	**	9000 –

^{** -} Not Requested









1835 W. 205th Street Torrance, CA 90501 Tel: (310) 618-8889

Fax: (310) 618-0818

Date: 07-18-2005 EMAX Batch No.: 05G064

Attn: Sevda Aleckson

SES-TECH

1940 E. Deere Avenue, Suite 200

Santa Ana CA 92705

Subject: Laboratory Report Project: Camp Pendleton, UST Site 16144

Enclosed is the Laboratory report for samples received on 07/12/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
	*******			
0003-035	G064-01	07/12/05	SQIL	TPH DIESEL
0003-036	G064-D2	07/12/05	SOIL	TPH DIESEL
0003-037	G064-03	07/12/05	SOIL	TPH DIESEL
0003-038	G064-04	07/12/05	SOIL	TPH DIESEL
0003-039	G064-05	07/12/05	SOIL	TPH DIESEL
0003-040	G064-06	07/12/05	SOIL	TPH DIESEL
0003-041	G064-07	07/12/05	SOIL	TPH DIESEL
0003-042	G064-08	07/12/05	LIOS	TPH DIESEL
0003-043	GD64-09	07/12/05	SOIL	TPH DIESEL
0003-044	G064-10	07/12/05	SOIL	TPH DIESEL
0003-045	G064-11	07/12/05	SOIL	TPH DIESEL
0003-046	G064-12	07/12/05	SOIL	TPH DIESEL
0003-047	G064-13	07/12/05	SOIL	TPH DIESEL
0003-048	G064-14	07/12/05	SOIL	TPH DIESEL
0003-049	G064-15	07/12/05	SOIL	TPH DIESEL
0003-050	6064-16	07/12/05	SOIL	TPH DIESEL
0003-051	G064-17	07/12/05	SOIL	TPH DIESEL
0003-052	G064-18	07/12/05	SOIL	TPH DIESEL
0003-053	G064-19	07/12/05	SOIL	TPH DIESEL



Sample ID Control # Col Date Matrix Analysis
0003-054 G064-20 07/12/05 SOIL TPH DIESEL

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D. Laboratory Director

1001





ST SITE	Heckson 2973  By ant Court  Heckson 947  Heckson 947  Heckson 947  O47  The 1445  O57  The 1445  O53  The 155  The 155  O53  The 155  The 155	12   15   15   15   15   15   15   15	13. 100 mm m m m m m m m m m m m m m m m m	WE	\$50778 \$1000 \$600000000000000000000000000000000	### CASON PURCUSE OLDER NO CHAIN OF LOS OF LEVEL 1 TO CHAIN OF LOS OF LOS OF LEVEL 1 TO CHAIN OF LOS	No. of Particular Part	ANALYSES REQUIRED  ANALYSES REQUIRED  STRUCTIONS/COMMENTS  TOO: 77 of A C S P 7 C S T V ( C)  STRUCTION	NALYSES REQUIRED  INTERPREDATE  INTERPREDATE		CS G UG Y  ANALYSES REQUIRED  LABORATORY DATE LABORATORY D  TO THE COMMENTS  So SA X X X X X X X X X X X X X X X X X X	
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OMPANO COMPANY	TIME	CONPANY		COOLER SEAL:	SEAL		PINTACT		O BROKEN			

White - Laboratory, Pink - Laboratory, Canary - Project File; Manila - Data Management



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White - Laboratory, Pink - Laboratory, Canary - Project File, Manila - Data Management



White - Laboratory, Pink - Laboratory, Canary - Project File; Manija - Data Management



#### Hanh Bui

From:

Richard Beauvil

Sent:

Thursday, July 14, 2005 10:59 AM

To:

Hanh Bui

Subject:

FW: Bottle order for Friday

Hi Hanh,

Please find the email below. Please put a copy in the master folder.

Thank you.

Richard.

----Original Message----

From: Richard Beauvil

Sent: Wednesday, July 13, 2005 5:26 PM To: 'Tania.TurpijnKeasler@tteci.com' Subject: RE: Bottle order for Friday

Hi Tanya,

Thank you. As per our phone conversation, we will hold the samples for 8260B until further notice. I will revise the login for 05G055 to remove the 8260 and log only tphext for 05G064 received yesterday. We will freeze the encores received yesterday for additional analysis later. For the 14 samples already extracted the price is \$25.00/sample.

Thank you.

Richard.

----Original Message----

From: Tania.TurpijnKeasler@tteci.com [mailto:Tania.TurpijnKeasler@tteci.com]

Sent: Wednesday, July 13, 2005 4:24 PM

To: RBeauvil@emaxlabs.com

Subject: Bottle order for Friday

#### Richard,

I would like the following bottles, coolers and trip blanks delivered to Santa Ana on Friday. Call or e-mail if you have questions.

5 cases (12 ct) of 1 liter amber bottles 1 box (72 ct??) of Hcl preserved 40 mil voas.

Lets start with 5-6 coolers and 15 trip blanks.

I think that covers it. We plan to begin groundwater sampling on Monday and will need pick-ups through Thursday. We maybe able to skip some pick up days, as all the holding times are 14 days (I believe). We will be sampling under PO 053915 Site 1791 and CTO 03 PO 055850 Site 16144 That is the sap you didn't have I will attach a version of the text you have the tables. Analysis will be for TPH-d, PAHs and VOCs.

Thank you,

Tania

1005



(See attached file: 050277 Final SAP_Rev0.doc)



EMAX-SM02 Rev. 3 Appendix 2

## SAMPLE RECEIPT FORM 1

	of Delivery	D.C				
EMAX Courler	of Delivery	Delivered By/Airbill		ECN	056064	· · · · · · · · · · · · · · · · · · ·
Client Delivery		3EE 6.V.C.		Recepient	ANTHONY	<u> </u>
☐ Third Party				Date	07.12.05.	
majoraty				Time	17:30	
		COC Inspection		•		
Client Name		Sampler Name	1	- Sampling 6	Date/Time/Location	
Address		Courler Signature/Date/Time		Analysis Re		
Client PM/FC		☑ TAT		Matrix	equirea	
Tel #/Fax #		Sample ID	l í		- <i>(it</i> )	
Safety Issues	None	High Concentrations expected	L ľ	Preservativ		
Comments:	Rad Screening Require		ι	Superfund	Site Samples	
	The Barenard Recidity					
				<del>*************************************</del>	***	
		Packaging Inspection			······································	
Container	Cooler ONE	Box	П	Г	<del>-</del> 1	
Condition	Custody Seal	Intact	☐ Damaged	I.	! 	
Packaging	Bubble Pack	Styrofoam	Sufficient	' L	ZPLASTIC	10 A A
Temperatures	Cooler 1 3.0°E	Cooler 2	Cooler 3			PAG
	Cooler 5	Cooler 6	Cooler 7		Cooler 4	
•	Cooler 9	Cooler 10	Cooler 11		Cooler 8	
Comments:			Cooler 11	L	Cooler 12	
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LSCID	Client ID	Discrepancy		Co	orrective Action	
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SCID : Lab Sampl	e Container ID					
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Sample Labeling.	07 12.05.	- SRF - HU		PM	Midd	



## REPORTING CONVENTIONS

## - DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
8	В	indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
€.	J	indicates that the result is above the maximum calibration range.
*	, *	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

## **ACRONYMS AND ABBREVIATIONS:**

CRDL.	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MRL PQL	Practical Quantitation Limit
MDL	Method Detection Limit -
DO	Diluted out

## **DATES**

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.



#### LABORATORY REPORT FOR

#### SES-TECH

CAMP PENDLETON, UST SITE 16144

# METHOD 3550B/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 05G064



#### **CASE NARRATIVE**

**CLIENT:** 

**SES-TECH** 

PROJECT:

**CAMP PENDLETON, UST SITE 16144** 

SDG:

05G064

### METHOD 3550B/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Twenty (20) soil samples were received on 07/12/05 for Total Petroleum Hydrocarbons by Extraction analysis by Method 3520C/8015B in accordance with SW846  $3^{RO}$  Edition.

#### 1. Holding Time

Analytical holding time was met. Extraction was performed and completed on 07/13/05.

#### 2. Calibration

Initial calibration was seven points for Diesel. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals and all recoveries were within 85-115%.

#### 3. Method Blank

Method blank was free of contamination at half of the reporting limit.

#### 4. Surrogate Recovery

All recoveries were within QC limits.

#### 5. Lab Control Sample

Recovery was within QC limits.

#### 6. Matrix Spike/Matrix Spike Duplicate

Sample G064-07 was spiked. Recoveries were within QC limits.

#### 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met. Samples were quantitated from C10 to C24 using Diesel (C10-C24) calibration factor.



LAB CHRONICLE TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client Laboratory Dilution X Analysis Sample ID Factor Moist DateTime MBLK1S DSG015SB 1 NA 07/13/0519:18 0003-035 G064-01 11.7 07/13/0520:29 0003-035 G064-05 1 14.4 07/13/0520:29 0003-036 G064-06 1 14.4 07/13/0520:25 0003-036 G064-06 1 14.1 07/13/0520:25 0003-036 G064-06 1 14.1 07/13/0520:25 0003-040 G064-06 1 6.4 07/13/0522:56 0003-041 G064-06 1 6.3 07/14/0503:18	##, UST SITE 16144  -aboratory Dilution -ample ID Factor	Moist Moist NA	Analysis DateTime				instrument	ment ID : GCT072	
Laborr Samplic PSG019 P5G019 P64-1 G064-1 G064-1 G064-1 G064-1 G064-1 G064-1 G064-1 G064-1	atory Dilution	MA NA	Analysis DateTîme						
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	003	7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7	07/13/0520:02	07/13/0514:00	BG13014A	BG13011A	0560158	Field Samele	3
	06 05 05 1	74.1 12.5 8.4	07/13/0520:45	07/13/0514:00	BG130154	RC13011A	20000		
	06 05 1	12.5	07/13/0521:29	07/13/0514:00	RG130164	0012010	020000		
	05	8	07/13/0522-12	07.42.0054.00		Al locing	201020	Field Sample	
	90		02.42.05E.1E	00:4100/61/70	861301 <i>C</i> A	BG13011A	DSG015S	Field Sample	
	-	) ·	05:7750/61/10	01/13/0514:00	BG13018A	BG13011A	<b>DSG015S</b>	Field Sample	
	•	<b>†</b> 1	07/13/0523:40	07/13/0514:00	BG13019A	BG13011A	05G0155	Field Sample	
		5.0 5.1	07/14/0503:18	07/13/0514:00	BG13024A	BG13023A	0560155	Field Same	
		9	07/14/0504:02	07/13/0514:00	BG13025A	BG13023A	0560155	Moteix Caibo Camala Cuo.	100
1	1	6.3	07/14/0504:46	07/13/0514:00	BG13026A	BG13023A	DS6015c	Me Diel State State	Ĉ
		7.6	07/14/0500:24	07/13/0514:00	RG130204	86130114	000000	na publicate (MSD)	
0005-045 - 6064-0	£	9.3	07/14/0501:07	07/13/051/-00	DC120214	2017011A	00000	rield Sample	
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1-7909		<u>י</u> ר	16:00:01/11/10	07/13/0514:00	BG13029A	BG13023A	0SG015S	Field Sample	
6044-17	2 =	y !	14:7050/+1/10	07/13/0514:00	BG13030A	BG13023A	0560155	Field Sample	
1 - 100p		J. 9.	07/14/0508:24	07/13/0514:00	BG13031A	BG13023A	0560155	Fine Commit	
CL-+000	-	7.1	07/14/0509:08	07/13/0514-00	BC170324	DC420224		בובות משולים	
6064-16	1	9.6	07/14/0509-52	07/13/051/-00	00120224	ACCOUNT OF	Daco	Field Sample	
5064-17	17	2	07/1//0511-40	00.41.00/01/10	BG ISUSSA	BLISUASA	0560155	Field Sample	
81-1909	α.		70 141 101 111 17	00:4:00/61//0	BG13035A	BG13034A	<b>0SG015S</b>	Field Sample	
6064-10			07/14/0512:05	07/13/0514:00	BG13036A	BG13034A	DSG015S	Field Sample	
1 100	_ :	9.	0//14/0512:47	07/13/0514:00	BG13037A	BG13034A	0560155	Field Canolo	
7 - tong		80	07/14/0513:30	07/13/0514:00	RG130384	BC120348	000000		

FN · Filename X Moist · Percent Noisture

5002



# SAMPLE RESULTS



Client : SES-TECH Date Collected: 07/12/05 : CAMP PENDLETON, UST SITE 16144 Project Date Received: 07/12/05 Project : LAMP PENL Batch No. : 05G064 Sample ID: 0003-035 Lab Samp ID: G064-01 Lab File ID: BG13014A Date Extracted: 07/13/05 14:00 Date Analyzed: 07/13/05 20:02 · Dilution Factor: 1 Metrix : SOIL Ext 8tch ID: DSG015S % Moisture : 11.7 Calib. Ref.: 8G13011A Instrument ID : GCT072 RESULTS RL MDL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) ------

5.7

DIESEL ND 11

SURROGATE PARAMETERS % RECOVERY QC LIMIT

HEXACOSANE 114 65-135

RL: Reporting Limit Parameter H-C Range Diesel C10-C24

 SURR
 : Hexacosane
 Water Soil
 Spike Spike Spike
 QC Limit GS-135%
 QC Limit GS-135%
 QC Limit GS-135%
 GS-135



Date Collected: 07/12/05 Client : SES-TECH Date Received: 07/12/05
Date Extracted: 07/13/05 14:00
Date Analyzed: 07/13/05 20:45
Dilution Factor: 1 Project : CAMP PENDLETON, UST SITE 16144 Batch No. : 05G064 Sample 1D: 0003-036

Lab Samp ID: G064-02 Lab File ID: BG13015A Matrix :,SOIL Ext Btch ID: DSG0158 % Moisture : 14.4 Calib. Ref.: 8G13011A Instrument ID : GCT072 

RESULTS MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 5.8

SURROGATE PARAMETERS % RECOVERY QÇ LIMIT HEXACOSANE 65-135

: Reporting Limit er H-C Range Parameter Diesel C10-C24

QC Limit QC Limit 63-165% 65-135% 65-135% 65-135% Spike 0.25 mg/L 25 mg/kg SURR : Hexacosane Water

Soil



Client : SES-TECH Date Collected: 07/12/05

Batch No. : 05G064
Sample ID: 0003-037
Lab Samp ID: G064-03
Lab File ID: B613016A Date Received: 07/12/05 Date Extracted: 07/13/05 14:00 Date Analyzed: 07/13/05 21:29

Dilution Factor: 1 Matrix : 501L : 14.1 Ext 8tch ID: DSG015S % Moisture Calib. Ref.: BG13011A Instrument ID : GCT072 ______

RESULTS RL MDL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL HD 12 5.8

SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 110 65-135

: Reporting Limit er H-C Range C10-C24 Parameter Diesel

Spike QC Limit QC Limit SURR : Hexacosane 0.25 mg/L 63-165% 25 mg/kg 65-135% Water 63-165% 65-135%

Soil 65-135%



_____

: SES-TECH Date Collected: 07/12/05 Project : CAMP PENDLETON, UST SITE 16144 Date Received: 07/12/05

Batch No. : 05G064 Date Extracted: 07/13/05 14:00 Date Analyzed: 07/13/05 22:12

Sample ID: 0003-038 Lab Samp ID: G064-04 Dilution Factor: 1 : SOIL Lab File ID: 8G13017A Matrix Ext Btch ID: DSG015S : 12.5 % Moisture Calib. Ref.: BG13011A Instrument ID : GCT072

RESULTS MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.7

SURROGATE PARAMETERS % RECOVERY QC LIMIT ------HEXACOSANE 102 65-135

: Reporting Limit Parameter H-C Range Diesel C10-C24

Spike QC Limit QC Limit : Kexacosane Water 0.25 mg/L 63-165% 65-135%

Soil 25 mg/kg 65-135% 65 - 135%



Client : S				Date	Collected:	N7/12/05
Project : 0	AMP PENDLETO	N, UST	SITE 16144	Date	Received:	07/12/05
Batch No. : C	5G064					07/13/05 14:00
Sample 10:0				Date	Analyzed:	07/13/05 22:56
Lab Samp ID: G				Dilut	ion Factor:	1
Lab File ID: 8					х :	
Ext Btch ID: D					sture :	
Calib. Ref.: B				Instr	ument ID:	GCT072
	gc========	======	=======	======	#=======	=======================================
PARAMETERS				RESULTS		MOL
-ARAPIC (ERG				(mg/kg)	(mg/kg)	(mg/kg)
DIESEL				ND	11	
				ηD	11	5.5
SURROGATE PARA	METERS		% RI	COVERY	OC LIMIT	
SURROGATE PARA	METERS		% RI	COVERY	QC LIMIT	
SURROGATE PARA	METERS		% Ri	100		
IEXACOSANE	••••		% RI		QC LIMIT  65-135	
EXACOSANE	rting Limit		% Ri			
EXACOSANE L : Reportante	rting Limit H-C Range		% Ri			
EXACOSANE	rting Limit H-C Range		% Ri			
EXACOSANE L : Reportarimentari	rting Limit H-C Range C10-C24		Spike	100 QC 1	65-135	imit
EXACOSANE L : Reportante	rting Limit H-C Range C10-C24	√ater Soil	Spike	100 QC 1	65-135	imit



Client : SES-TECH Date Collected: 07/12/05

: CAMP PENDLETON, UST SITE 16144 Date Received: 07/12/05 Project Batch No. : 05G064 Sample ID: 0003-040 Date Extracted: 07/13/05 14:00 Date Analyzed: 07/13/05 23:40 ~

Lab Samp ID: G064-06 Lab File ID: BG13019A Dilution Factor: 1 : SOIL Matrix % Moisture : 6.4 Instrument ID : GCT072 Ext Btch ID: DSG015S Calib. Ref.: BG13011A

RESULTS MDL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.3

SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 65-135

: Reporting Limit er N-C Range Parameter C10-C24 Diesel

Spike QC Limit QC Limit 0.25 mg/L 25 mg/kg 63-165% 65-135% SURR : Hexacosane Water

65-135% 65-135% Soil



Client : SES-TECH Date Collected: 07/12/05 Project : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G064
Sample ID: 0003-041
Lab Samp ID: G064-07
Lab File ID: BG13024A
Ext Btch ID: DSG015S Date Received: 07/12/05 Date Extracted: 07/13/05 14:00 Date Analyzed: 07/14/05 03:18 Dilution Factor: 1 Matrix : SOIL % Moisture Calib. Ref.: 8G13023A Instrument ID : GCT072 RESULTS MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.3 SURROGATE PARAMETERS QC LIMIT % RECOVERY HEXACOSANE 65-135 : Reporting Limit Parameter H-C Range C10-C24 Diesel QC Limit QC Limit 63-165% 65-135% Spike SURR : Hexacosane 0.25 mg/L

25 mg/kg 65-135%

65-135%

Water Soil



Page 1 of 1

#### METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

: c:\ezchrom\chrom\bg13\bg13.024
: c:\ezchrom\methods\ds72e11.met ' File Method

Sample ID : 05G064-07

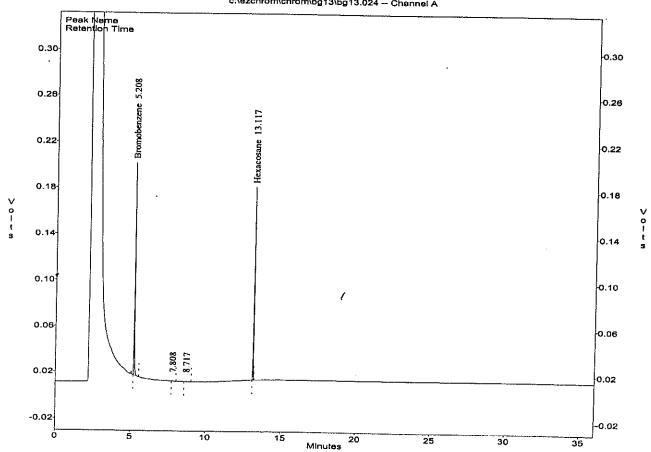
Acquired : Jul 14, 2005 03:18:58 : Jul 14, 2005 11:02:03 Printed

User : JANE

#### Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD	Conc. (ppm)
				*****		conc. (ppiii)
1	Bromobenzene	5.208 -	396658	6406.2	,	61 0
	Hexacosane	13.117 /		11957.9		61.9
	Diesel (TOTAL)		2555	10848.4		24.8
	Diesel(C10-C24)		2555	10797.5		0.2
G3	Diesel(C10-C28)		2555		,	0.2
			4000	10/22.0	•	0.2

#### c:\ezchrom\chrom\bg13\bg13.024 -- Channel A



5011



Client Date Collected: 07/12/05
Date Received: 07/12/05
Date Extracted: 07/13/05 14:00 : SES-TECH Project : CAMP PENDLETON, UST SITE 16144 Batch No. : 05G064 Sample ID: 0003-042 Lab Samp ID: G064-08 Date Analyzed: 07/14/05 00:24 Dilution Factor: 1 Lab File ID: BG13020A : 5011 Matrix Ext Btch ID: 0SG015S % Moisture : 7.6 Calib. Ref.: BG13011A Instrument ID : GCT072 RESULTS MDL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL ND 5.4 SURROGATE PARAMETERS % RECOVERY QC LIMIT -----HEXACOSANE 101 65-135 : Reporting Limit Parameter H-C Range Diesel C10-C24 Spike QC Limit QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135%

Soil

25 mg/kg 65-135%

65-135%



Client : SES-TECH Date Collected: 07/12/05 Project : CAMP PENDLETON, UST SITE 16144 Date Received: 07/12/05 Batch No. : 05G064 Date Extracted: 07/13/05 14:00 Sample ID: 0003-043 Lab Samp ID: G064-09 Date Analyzed: 07/14/05 01:07 Dilution Factor: 1 : SOIL Lab File ID: BG13021A Matrix % Moisture : 9.3 Instrument ID : GCT072 Ext Btch ID: DSG015S Calib. Ref.: BG13011A

RESULTS MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.5

SURROGATE PARAMETERS % RECOVERY QC LIMIT ...... **HEXACOSANE** 100 65-135

: Reporting Limit Parameter H-C Range Diesel C10-C24

Spike QC Limit QC Limit 0.25 mg/L 63-165% 25 mg/kg 65-135% SURR : Hexacosane Water 65 - 135%

Soil 65-135%



Client : SES-TECH Date Collected: 07/12/05 Project : CAMP PENDLETON, UST SITE 16144 Date Received: 07/12/05 Batch No. : 05G064 Date Extracted: 07/13/05 14:00 Sample ID: 0003-044 Date Analyzed: 07/14/05 05:30 Lab Samp ID: 6064-10 Dilution Factor: 1 Lab File ID: BG13027A : SOIL Matrix Ext Btch ID: DSG0158 % Moisture : 8.3 Instrument ID : GCT072 Calib. Ref.: 8G13023A 

RESULTS RL MDI. **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.5 SURROGATE PARAMETERS % RECOVERY QC LIMIT

: Reporting Limit Parameter H-C Range Diesel C10-C24

HEXACOSANE

Spike QC Limit QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135%

Soil 25 mg/kg 65-135% 65-135%

100

65-135



	========	==========	========		
Client : SES-TECH Project : CAMP PENDLE Batch No. : 05G064 Sample ID: 0003-045 Lab Samp ID: G064-11 Lab File ID: BG13028A Ext Btch ID: D5G015S Calib. Ref.: BG13023A	TON, UST S	ITE 16144	Date Reco Date Extra Date Anal Dilution Fa Matrix % Moisture Instrument		2/05 3/05 14:00 3/05 06:13
PARAMETERS			ULTS /kg) (mg	RL /kg)	MDL (mg/kg)
DIESEL			₹D	10	5.2
SURROGATE PARAMETERS HEXACOSANE		% RECO		LIMIT 5-135	
RL: Reporting Limit Parameter H-C Range Diesel C10-C24				•	
SURR : Hexacosane	Water Soil		QC Limit 63-165% 65-135%		



*2*====================================	=======				
Client: SES-TECH Project: CAMP PENDLE Batch No.: 05G064 Sample ID: 0003-046 Lab Samp ID: G064-12 Lab File ID: BG13029A Ext Btch ID: DSG0155 Calib. Ref.: BG13023A	TON, UST S		Date Rec Date Extr Date Ana Dilution F Matrix % Moisture	: SOIL : 13.6 ID : GCTO	2/05 3/05 14:00 4/05 06:57
PARAMETERS		RESI	ULTS	RL i/kg)	MDL (mg/kg)
DIESEL		ł	ND.	12	5.8
SURROGATE PARAMETERS HEXACOSANE		% RECOV		LIMIT 5-135	
RL : Reporting Limit Parameter H-C Range Diesel C10-C24					
SURR : Hexacosane	Water Soil	Spike 0.25 mg/L 25 mg/kg	63-165%	65-135%	



Client : SES-TECH Date Collected: 07/12/05 Project : CAMP PENDLETON, UST SITE 16144 Batch No. : 05G064 Date Received: 07/12/05

Date Extracted: 07/13/05 14:00 Sample ID: 0003-047 Date Analyzed: 07/14/05 07:41 -Lab Samp ID: G064-13 Dilution Factor: 1

Lab File ID: EG13030A : SOIL : 7.2 Matrix Ext Btch ID: DSG015s Calib. Ref.: BG13023A % Moisture Instrument ID : GCT072 ______ 

RESULTS RL MDL **PARAMETERS** (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11

SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 105 65-135

: Reporting Limit ter H-C Range Parameter Diesel C10-C24

Spike QC Limit QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135%

Soil 25 mg/kg 65-135% 65-135% 5.4



Client : SES-TECH Date Collected: 07/12/05 : CAMP PENDLETON, UST SITE 16144 Project Date Received: 07/12/05

Batch No. : 05G064 Date Extracted: 07/13/05 14:00 Sample 10: 0003-048

Date Analyzed: 07/14/05 08:24

Lab Samp ID: G064-14 Lab File ID: BG13031A Dilution Factor: 1 : SOIL Matrix Ext Btch ID: DSG015S % Moisture : 16.7 Instrument ID : GCT072 Calib. Ref.: BG13023A

------

RESULTS RL MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 12

SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 102 65-135

: Reporting Limit er H-C Range Parameter Diesel C10-C24

Spike QC Limit QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135%

25 mg/kg Soil 65-135% 65-135%



Client : SES-TECH Date Collected: 07/12/05 Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G064
Sample ID: 0003-049 Date Received: 07/12/05 Date Extracted: 07/13/05 14:00 -Date Analyzed: 07/14/05 09:08 Lab Samp ID: G064-15 Dilution Factor: 1 Lab File ID: BG13032A Matrix : SOIL Ext 8tch ID: DSG015S % Moisture : 7.1 Instrument ID : GCT072 Calib. Ref.: BG13023A RESULTS RL MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.4 SURROGATE PARAMETERS % RECOVERY QC LIMIT

106

65-135

RL: Reporting Limit
Parameter H-C Range
Diesel C10-C24

HEXACOSANE

Surr : Hexacosane Water 0.25 mg/L 63-165% 65-135% 50il 25 mg/kg 65-135% 65-135%



Page 1 of 1

# METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bg13\bg13.032 : c:\ezchrom\methods\ds72e11.met Method

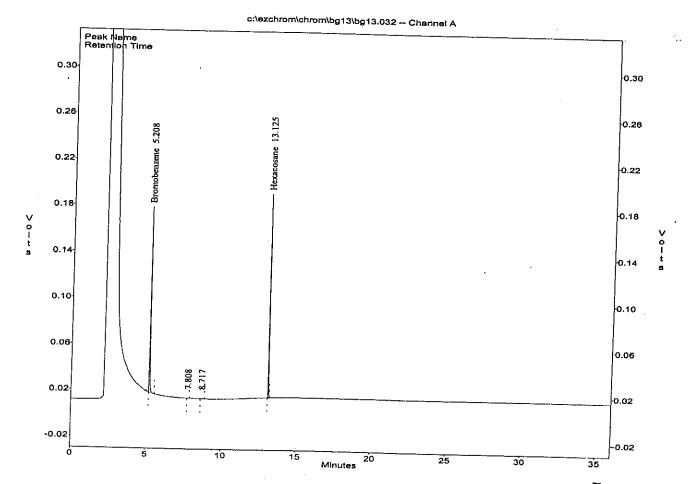
Sample ID : 05G064-15

Acquired : Jul 14, 2005 09:08:31 : Jul 14, 2005 11:07:31 Printed

User : JANE

#### Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	Edwo de .
	~~~~~~~~~~~~~~~			Ave. Cr	ESTD Conc. (ppm)
1	Bromobenzene	5.208	770000		
	Hexacosane	13.125	- 222100	6406.2	33.0
	Diesel (TOTAL)	13.125	0	11957.9 -	26.4
	Diesel (C10-C24)		2474	10848.4 -	0.2
G 3	Diesel (C10-C28)		2474	10797.5	
GS	Dieser (CIO-CS8)		2474	10799.8	0.2
	,			10/00.0	0.2





Client : SES-TECH Date Collected: 07/12/05 Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G064 Date Received: 07/12/05 Date Extracted: 07/13/05 14:00
Date Analyzed: 07/14/05 09:52
Dilution Factor: 1 Sample ID: 0003-050 Lab Samp ID: G064-16 Lab File ID: BG13033A Matrix : SOIL Ext Btch ID: DSG0158 % Moisture : 9.8 Instrument ID : GCT072 % Moisture Calib. Ref.: 8G13023A 222ccc RESULTS MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.5 SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 107 65-135 : Reporting Limit er H-C Range C10-C24

Spike

Water

Soil

0.25 mg/L 25 mg/kg

QC Limit 65-135% 65-135%

QC Limit

63-165%

65-135%

Parameter Diesel

: Hexacosane

SURR



Client : SES-TECH Date Collected: 07/12/05 : CAMP PENDLETON, UST SITE 16144 Project Date Received: 07/12/05
Date Extracted: 07/13/05 14:00
Date Analyzed: 07/14/05 11:19 Batch No. : 05G064 Sample ID: 0003-051 Lab Samp ID: G064-17 Dilution Factor: 1 Lab File ID: BG13035A Matrix : SOIL Ext Btch ID: DSG015s % Moisture % Moisture : 4.2 Instrument ID : GCT072 Calib. Ref.: BG13034A RESULTS MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 10 5.2 SURROGATE PARAMETERS % RECOVERY QC LIMIT ------HEXACOSANE 103 65-135 : Reporting Limit Parameter H-C Range Diesel C10-C24 Spike QC Limit QC Limit SURR

0.25 mg/L

25 mg/kg

63-165%

65-135%

65-135% 65-135%

: Hexacosane

Water

Soil



Client : SES-TECH Date Collected: 07/12/05
Project : CAMP PENDLETON, UST SITE 16144 Date Received: 07/12/05

 PARAMETERS
 RESULTS (mg/kg) (mg/kg) (mg/kg)
 MDL

 DIESEL
 ND
 11
 5.4

SURROGATE PARAMETERS % RECOVERY QC LIMIT
HEXACOSANE 109 65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

Spike QC Limit QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165% 65-135%

Soil 25 mg/kg 65-135% 65-135%



Client : SES-TECH Date Collected: 07/12/05 Date Collected: U7/12/U5
Date Received: 07/12/05
Date Extracted: 07/13/05 14:00
Date Analyzed: 07/14/05 12:47 : CAMP PENDLETON, UST SITE 16144 Project Batch No. : 05G064 Sample ID: 0003-053 Leb Samp ID: G064-19 Dilution Factor: 1 Lab File ID: BG13037A Ext Btch ID: DSG015S Matrix : SOIL % Moisture : 10.6 Calib. Ref.: BG13034A Instrument ID : GCT072 REUSSERGGE-982E-860=860=860==882E-9808==8880=5=880E-860=8808=880E-860=

RESULTS MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ИD 11 5.6

SURROGATE PARAMETERS % RECOVERY QC LIMIT ------HEXACOSANE 108 65-135

: Reporting Limit er H-C Range Parameter Diesel C10-C24

QC Limit Spike QC Limit : Hexacosane 0.25 mg/L 63-165% 25 mg/kg 65-135% 65-135% 65-135% Water 63-165X

Soil



8484886558448555548855556888555488888855555556488855556484848886555 Client : SES-TECH Date Collected: 07/12/05 Project : CAMP PENDLETON, UST SITE 16144 Date Received: 07/12/05 Batch No. : 05G064 Date Extracted: 07/13/05 14:00 Sample ID: 0003-054 Date Analyzed: 07/14/05 13:30 Lab Samp ID: G064-20 Dilution Factor: 1

Lab File ID: BG13038A Matrix : SOIL Ext Btch ID: DSG015S % Moisture Calib. Ref.: BG13034A Instrument ID : GCT072

RESULTS MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 11 5.4

SURROGATE PARAMETERS % RECOVERY QC LIMIT HEXACOSANE 65-135

RL : Reporting Limit Parameter H-C Range Diesel C10-C24

QC Limit QC Limit 63-165% 65-135% Spike 0.25 mg/L 25 mg/kg SURR : Hexacosane Water

Soil 65-135% 65-135%



QC SUMMARIES



Client

: SES-TECH Date Collected: NA

: CAMP PENDLETON, UST SITE 16144 Project Date Received: 07/13/05

Date Extracted: 07/13/05 14:00 Date Analyzed: 07/13/05 18:35 -

Batch No.: 05G064
Sample ID: MBLK1S
Lab Samp ID: DSG015SB
Lab File ID: BG13012A Dilution Factor: 1 : SOIL Matrix Ext Btch ID: DSG015S % Moisture : NA

Calib. Ref.: BG13011A Instrument ID : GCT072

RESULTS RL MDL PARAMETERS (mg/kg) (mg/kg) (mg/kg) DIESEL ND 10

SURROGATE PARAMETERS % RECOVERY QC LIMIT

HEXACOSANE 123 65-135

: Reporting Limit er H-C Range C10-C24 Parameter Diesel

QC Limit 65-135% Spike QC Limit SURR : Hexacosane Water 0.25 mg/L 63-165%

Soil 25 mg/kg 65-135% 65-135%



EMAX QUALITY CONTROL DATA LCS ANALYSIS

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

BATCH NO.:

METHOD:

05G064 METHOD 35508/80158

MATRIX:

SOIL .

% MOISTURE:

NA

DILUTION FACTOR: 1 SAMPLE ID: MBLK1S

LAB FILE ID:

DSG015SB BG13012A

DSG015SL 8G13013A

DATE ANALYZED:

DATE EXTRACTED: 07/13/0514:00 07/13/0514:00 07/13/0518:35 07/13/0519:18

DATE COLLECTED: NA

PREP. BATCH: CALIB. REF:

DSG015S BG13011A DSG015s BG13011A DATE RECEIVED: 07/13/05

ACCESSION:

PARAMETER ------

Diesel

BLNK RSLT SPIKE AMT (mg/kg) (mg/kg)

BS RSLT (mg/kg)

QC LIMIT % REC (%)

ND

500

423 85

65-135

SURROGATE PARAMETER

SPIKE AMT BS RSLT (mg/kg) (mg/kg)

QC LIMIT % REC (%)

122

Hexacosane

25 30.4 65-135



EMAX QUALITY CONTROL DATA MS/MSD ANALYSIS

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

BATCH NO.:

05G064

METHOD:

METHOD 35508/80158

MATRIX: SOIL % MOISTURE:

SAMPLE ID: LAB SAMP ID:

LAB FILE ID:

DILUTION FACTOR:

0003-041

G064-07 G064-07M BG13024A BG13025A

G064-07s BG13026A

DATE EXTRACTED: 07/13/0514:00 DATE AWALYZED: 07/14/0503:18 PREP. BATCH: DSG015S

BG13023A

07/14/0504:02 DSG015S BG13023A

07/13/0514:00 07/13/0514:00 07/14/0504:46 DSG015S BG13023A

DATE COLLECTED: 07/12/05 DATE RECEIVED: 07/12/05

6.3

CALIB. REF: ACCESSION:

SMPL RSLT SPIKE AMT MS RSLT SPIKE AMT MSD RSLT MSD QC LIMIT MAX RPD PARAMETER (mg/kg) (mg/kg) (mg/kg) % REC (mg/kg) (mg/kg) % REC (X) (%) Diesel ND 534 534 404 65-135 35

SPIKE AMT MS RSLT SPIKE AMT MSD RSLT MSD QC LIMIT

SURROGATE PARAMETER (mg/kg) (mg/kg) % REC (mg/kg) (mg/kg) % REC (%) Hexacosane 26.7 28.4 107 26.7 28.9 108 65-135 NUMBER 12429

TETRATECH
1230 Columbia Street, Salte 500
Sam Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

levels. No validative 8 SAMPLING COMMENT: Grabe Samples reided to determine water START END Project Information DEPTH Ma grab samoles Do not submit to Laboratory roBbnk LOCATION が位 SAMPLE CONDITION:

INTACT | BROKEN かるみが 05G075 COMMENTS LABORATORY ID (FOR LABORATORY) LABORATORY NAME SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) IACT DROKEN ANALYSES REOUIRED LABORATORY INSTRUCTIONS/COMMENTS COMPOSITE DESCRIPTION TEMPERATURE: ____COOLER SEAL: ã 149 - 750-7549 LEVEL 2913-0003 NO. OF CONTAINER (1) 3 RECEIVED BY (Signature) RECEIVED BY (Signature) URCHASE ORDER NO Sacke TIME PROJECT NO. -050Ghis-or10to 0003-055Grusos1030 COMPANY COMPANY DATE COLLECTED Jamp Perdleton Little Brant Sever Aladren TIME DATE 11ME Solatia STSIE WHY **VELINQUISHED BY (Signature)** ELINQUISHED BY (Signature) SAMPLE ID QIECT LOCATION 203 COMPANY COMPANY

SAMPLE RECEIPT FORM 1

				,	
	of Delivery	Delivered By	//Airbill	ECN	056075
EMAX Courier		P-HATCHER		Recepient	yonLung
☐ Client Delivery				Date	7-13-05
Third Party				Time	
				<u> </u>	
		COC Inspec	ction		
Client Name		Sampler Name		Sampling	Date/Time/Location
Address	•	Courier Signature/Date/Time	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Analysis R	
Client PM/FC	•	TAT		Matrix	equired
Tel #/Fax #	100	Sample ID	~~		414
1	, , , , , , , , , , , , , , , , , , ,	· ·			ve (if any)
1 '	None	High Concentrations expected			Site Samples
Comments:	Rad Screening Require	d			
<u></u>					
		Packaging Insp	pection		•
Container	Cooler	☐ Box _		+	
Condition	Custody Seal		☐ Damag	ged [
Packaging	Bubble Pack	Styrofoam	Sufficie	ent .	
Temperatures	Cooler 13.8°C	Cooler 2	☐ Cooler :	3 İ	Cooler 4
	Cooler 5	Cooler 6			Cooler 8
}	Cooler 9	Cooler 10			Cooler 12
Comments:			Cooler .		
LSCID	Client ID	Dingranor	201		
LOCID	Ollent ID	Discrepar	icy		orrective Action
	-		7		
		/			
					مميد ،
				*	
		/			
		/			
L COID . L . L D	4-0-1				
LSCID : Lab Samp	ole Container ID				\bigcirc \bigcirc \bigcirc
REVIEWS C	- SPA				13/1/1
Sample Labeling		SRF	com	PM_	1400
Date	7-13-5	Date	7/13/05	Date _	V 7/13/05
					7 7

SW 5030B/8260B VOLATILE ORGANICS BY GC/MS

Client : SES-TECH	Date Collected: 07/13/05
Project : CAMP PENDLETON, UST S	
Batch No. : 05G075	Date Extracted: 07/21/05 05:07
Sample ID: 0003-055	Date Analyzed: 07/21/05 05:07
Lab Samp ID: G075-01	Dilution Factor: 1
Lab File ID: RGC541	Matrix : WATER
Ext Btch ID: V067G43	* Moisture : NA
Calib. Ref.: RGC517	Instrument ID : T-067
	RESULTS RL MDL
PARAMETERS	(ug/L) (ug/L) (ug/L)

1,1,1-TRICHLOROETHANE	ND 5 .2
1,1,2,2-TETRACHLOROETHANE	ND 1 .2
1,1,2-TRICHLOROETHANE	ND 5 ,2
1,1-DICHLOROETHANE	ND 5 .2
1,1-DICHLOROETHENE	ND 5 .2
1,2-DICHLOROETHANE	ND .5 ,2
1,2-DICHLOROPROPANE	ND 5 ,2
METHYL ETHYL KETONE	ND 50 .2
2-HEXANONE	ND 50 5
4-METHYL-2-PENTANONE (MIBK)	ND 50 5
ACETONE	ND 50 5
BENZENE	ND5 .2
BROMODICHLOROMETHANE	ND 5 .2
BROMOFORM	ND 5 .3
BROMOMETHANE	ND 5 .2
CARBON TETRACHLORIDE	ND .5 .2
CHLOROBENZENE	ND 5 .2
CHLOROBENZENS	
CHLOROFORM	· · · · · · · · · · · · · · · · · · ·
CHLOROMETHANE	ND 5 .2
CIS-1,2-DICHLOROETHENE	·-
CIS-1,3-DICHLOROPROPENE	ND .5 .2
DIBROMOCHLOROMETHANE	ND 5 .2
ETHYLBENZENE	ND .5 .2
XYLENES	ND 15 .2
MTBE	ND 1 .2
METHYLENE CHLORIDE	ND 5 .5
STYRENE	ND 5 .2
TETRACHLOROETHYLENE	ND 5 .2
TOLUENE	ND .5 .2
TRANS-1,2-DICHLOROETHENE	ND 5 .2
TRANS-1,3-DICHLOROPROPENE	ND .5 ,2
TRICHLOROETHENE	ND 5 .2
VINYL ACETATE	ND 50 .5
VINYL CHLORIDE	ND .5 .2
TERT-BUTYL ALCOHOL	ND 20 5
DIISOPROPYL ETHER	ND 5 .2
ETHYL TERT-BUTYL ETHER	ND 5 .2
TERT-AMYL METHYL ETHER	ND 5 .2
SURROGATE PARAMETERS	* RECOVERY QC LIMIT
1,2-DICHLOROETHANE-D4	95 65-135
TOLUENE - D8	104 75~125
BROMOFLUGROBENZENE	97 75-125

R.L.: Reporting limit

* : Out of QC

E : Exceeded calibration range

B : Found in associated method blank

J : Value between R.L. and MDL

D : Value from dilution analysis

D.O.: Diluted out

Preservation Date: 07/12/05 12:45

SW 5030B/8260B VOLATILE ORGANICS BY GC/MS

22. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	医黑耳氏性皮肤炎 医多种性 经收益 医多种性 医多种性 医多种性 医多种性 医多种性 医多种性 医多种性 医多种性
Client : SES-TECH	Date Collected: 07/13/05
CAMP PENDLETON, UST SITE 1	6144 Date Received: 07/13/05
No. : 05G075	Date Extracted: 07/21/05 07:32
; ID: 0003-056	Date Analyzed: 07/21/05 07:32
	Dilution Factor: 1
La_ Samp ID: G075-02	Matrix : WATER
Lab File ID: RGC545	Moisture : NA
Ext Btch ID: V067G43	Instrument ID : T-067
Calib. Ref.: RGC517	
医环状性 医甲基苯基二甲甲基氏试验 医医阴炎 经过 医二二二甲甲甲二甲甲基苯基苯甲甲甲	其实是由于自然的的是由于自己的自己的,但是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是
	RESULTS RL MDL
	(ug/L) (ug/L) (ug/L)
PARAMETERS	(49/2/ (49/2/
1,1,1-TRICHLOROETHANE	
1,1,2,2-TETRACHLOROETHANE	ND 1 .2
1,1,2-TRICHLOROETHANE	ND 5 .2
1,1-DICHLOROETHANE	ND 5 .2
1,1-DICHLOROETHENE	ND 5 .2
1,2-DICHLOROETHANE	ND .5 .2
1,2-DICHLOROPROPANE	ND S .2
METHYL ETHYL KETONE	ND 50 .2
2-HEXANONE	ND 50 5
4-METHYL-2-PENTANONE (MIBK)	ND 50 5
ACETONE	ND 50 5
BENZENE	ND5 .2
BROMODICHLOROMETHANE	ND 5 .2
BROMOFORM	ND S .3
=	ND 5 .2
BROMOMETHANE	ND .5 .2
CARBON TETRACHLORIDE	ND 5 .2
CHLOROBENZENE	ND 5 .2
CHLOROETHANE	ND 5 .2
CHLOROFORM	
CHLOROMETHANE	***
CIS-1,2-DICHLOROETHENE	
CIS-1,3-DICHLOROPROPENE	***
DIBROMOCHLOROMETHANE	ND 5 .2
ETHYLBENZENE	ND .5 .2
XYLENES	ND 5 .2
MTBE	ND 1 .2
METHYLENE CHLORIDE	ND 5 .5
COVRENE	พื้อ 5 .2
ACHLOROETHYLENE	ND 5 .2
INE	ND .5 .2
S-1,2-DICHLOROETHENE	ND S .2
TRANS - 1, 3 - DICHLOROPROPENE	ND .5 .2
TRICHLOROETHENE	ND 5 .2
VINYL ACETATE	ND 50 .5
VINYL CHLORIDE	ND .5 .2
TERT-BUTYL ALCOHOL	ND 20 5
	ND 5 .2
DIISOPROPYL ETHER	ND 5 .2
ETHYL TERT-BUTYL ETHER	ND 5 .2
TERT-AMYL METHYL ETHER	MD 3 .2
SURROGATE PARAMETERS	* RECOVERY QC LIMIT
SURROGATE PARAMETERS	
1,2-DICHLOROETHANE-D4	93 65-135
TOLUENE-D8	101 75-125
BROMOFLUOROBENZENE	88 75-125
BEOMOT HONORONDANO	

R.L.: Reporting limit

• : Out of QC

E : Exceeded calibration range

B : Found in associated method blank

J : Value between R.L. and MDL

D : Value from dilution analysis

D.O.: Diluted out

Preservation Date: 07/12/05 12:45

SW 5030B/8260B VOLATILE ORGANICS BY GC/MS

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G075
Sample ID: MBLK1W
Lab Samp ID: V067G43Q
Lab File ID: RGC532
Ext Btch ID: V067G43
Calib Ref : RGC517 Date Collected: NA Date Received: 07/20/05 Date Extracted: 07/20/05 23:39 Date Analyzed: 07/20/05 23:39 Dilution Factor: 1 Matrix : WATER & Moisture : NA
Instrument ID : T-067 Calib. Ref.: RGC517

	RESULTS	RL	MDL
PARAMETERS	(ug/L)	(ug/L)	(ug/L)

1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	. 2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	NĐ	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	. 5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	٠5	. 2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	. 2
CHLOROMETHANE	ИD	5	, 2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	. 5	.2
XYLENES	ND	S	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	. 5
STYRENE	ND	5	. 2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	. 2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	. 2
VINYL ACETATE	ND	50	.s
VINYL CHLORIDE	ND	.5	. 2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND .	5	. 2
TERT-AMYL METHYL ETHER	ND	5	. 2

SURROGATE PARAMETERS	* RECOVERY	QC LIMIT

1,2-DICHLOROETHANE-D4	96	65-135
TOLUENE-D0	101	75-125
BROMOFLUOROBENZENE	96	75-125

R.L.: Reporting limit
* : Out of QC

Exceeded calibration range Found in associated method blank

J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out

Preservation Date: 07/12/05 12:45

EMAX QUALITY CONTROL DATA LCS/LCD ANALYSIS

SES-TECH CAMP PENDLETON, UST SITE 16144 05G075 SW 5030B/8260B PROJECT: BATCH NO.: METHOD:

DATE COLLECTED: NA DATE RECEIVED: 07/20/05 Ž * MOISTURE: 07/20/0522:26 07/20/0522:26 V067G43 RGC517 VO67G43C RGC530 V067G43Q V067G43L W RGC512 RGC529 R 07/20/0523:39 07/20/0521:50 0' V067G43 V067G43 RGC517 RC ì Mblkiw SAMPLE ID:
MASAMPLE ID:
LAB SAMP ID:
VALAB FILE ID:
RATE EXTRACTED:
DATE ANALYZED:
PREP. BATCH:
CALIB. REF:
R MATRIX:

ACCESSION:

QC LIMIT HAX RPD (*) (- * 99 102 104 102 9.89 10.2 10.4 10.2 10.2 SPIKE AMT BSD RSLT (1/6n) (1/gn) BS * REC 96 98 101 99 9.6 9.82 10.1 9.94 BLNK RSLT SPIKE AMT BS RSLT (ug/L) (ug/L) (ug/L) 22222 22222 1,1-Dichloroethene Trichloroethene Chlorobenzene PARAMETER Toluene Benzene

	SPIKE AMT	BS RELT	BS	SPIKE AMT	BSD RSLT	BSD	OC LIMIT	
SURROGATE PARAMETER	(ng/r)	(ng/F)		(ng/r)	(ug/L) * REC	* REC		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	* * * 1 1 1 1 1	# (f 1 1 1 1 1 1 1 1 1	1 1 1 1 1	***	1111111		1	
1,2-Dichloroethane-d4	10	9.55	96	10	9.99	300	65-135	
Toluene-d8	10	01	100	10	10.7		75-125	
Bromofluorobenzene	10	9.27	93	10	9.92		75-125	





TABLE OF CONTENTS

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

SDG:

05G055A

SECTION		PAGE
Cover Letter, Co	OC/Sample Receipt Form	1000 – 1007
GC/MS-VOA	SW 5035/8260B	2000 – 2030
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	SW 3550B/8310	6000 – 6027
METALS	**	7000
WET	**	8000 –
OTHERS	**	9000 –

^{** -} Not Requested









1835 W. 205th Street Torrance, CA 90501

Tel: (310) 618-8889 Fax: (310) 618-0818

Date: 07-28-2005 EMAX Batch No.: 05G055A

Attn: Sevda Aleckson

SES-TECH 1940 E. Deere Avenue, Suite 200 Santa Ana CA 92705

Subject: Laboratory Report

Project: Camp Pendleton, UST Site 16144

Enclosed is the Laboratory report for samples received on 07/11/05. The data reported include:

Sample ID

Control # Col Date Matrix Analysis

0003-014

VOLATILE ORGANICS BY GC/MS

G055-07 07/11/05 SOIL

PAH BY HPLC

0003-027 G055-20 07/11/05 SOIL

VOLATILE ORGANICS BY GC/MS

PAH BY HPLC

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours, far)

Kam Y. Pang, Ph.D. Laboratory Director



Page 8 of 11 EMAX-QA01 Rev. 2 Appendix 4

CHANGE ORDER FORM

SDG	056055	A	TA	T 10 days Project Code SES_050						
Requ	ested by Vila	d D	ate Requeste	, ,						
	Analytical Requirements									
AXO	EMAX Control Number	Sample Prep. Methods	Analytical Methods	Special Instructions						
A	056055A-07	5035	8260	0003-014						
		3550B	8310							
A	05G055A-20	5035	8260	0003-027						
-		3550B	6310							
	·									
	·									
A-add:	itional									

A-additional

X-cancelled

O-others (specify)

Rmb 115/05



Richard Beauvil

From:

Tania.TurpljnKeasler@tteci.com Friday, July 15, 2005 9:19 AM

Sent: To:

Cc:

Richard Beauvil

Subject:

'Sevda@enviromatrix.com'; Sevda Aleckson (E-mail); Tanya Turpijn-Keasler (E-mail) Re: 05g055

Richard,

Thank you for the results. Please do additional analysis for VOC's and

with a 10 day TAT on samples 0003-014 and 0003-027.

Also, please cc Mark Cutler on the results from the second set of samples (mark.cutler@tteci.com).

Thank you,

Tania

NUMBER 12422 RECORD OSGÓSTS	ANALYSES REQUIRED LABORATORY NAME	X 17/2	LABORATORY ID		COMMENTS											Squple Fox 400 ins 24c			SAMPLE CONDITION UPON RECEIFT (FOR LABORATORY)	SAMPLE CONTIGUOR: "AL INTACT. D. BROKEN. CT. D. BROKEN.
CHAIN-OF-CUSTODY RECORD	ANAL) o	ය <u>8</u>) S පි	2 :	1- < 1- H9T	×	n s	20 00 X	3 ox X	3 0 X X	2 X X A	3 0 XX	30 X	x neg	star X	ABORATORY INSTRUCTIONS/COMMENTS HOLD REMAINING SQUIDE	EVOC. CLOS 10 DAY		PERATURE 2:8 C	COOLER SEAL TOTAL
/ CHAI	DER NO	2973.0003	COOKIETY	949-756 - 7549	NO. OF LEVEL Y CONTABRER 3 4 F	N. X.	H X	4 X	4 × ×	7 × ×	4 X X	+ × ×	~ ×	1 1	<u>7</u>	NA THE	W A X			O O3
<u> </u>	PUNCHASSORDER NO				DATE TIME COLLECTED COLLECTED	7-11-05 (PSS)	H-05 1004	7-11-05 1010	7-11-05 101G	74.65 1020	7-11-05 1037	3401 Sall-L	7410S 1113	7-11-05 1123	7-11-05 1137		(S) RECEIVED B	13c		COMPANY
TETRA TECH 124 Colrado Street, Sale 500 340 C	UST SITE 16144	CAMP PENDLETEN		Sevo4 Areacosan	SAMPLEID	0003-008	1 600-8000	0003-010 7	7- 110 -2000	00-3-012 7	0003-019 7	DO03-014 7	2003-615	DOD3-016 7-	OWS - 017 7-		Thomas and the second s	MAX	(Signature)	TIME

White - Laboratory; Pink - Laboratory; Canary - Project File; Manija - Data Management

CHAIN-OF-CUSTODY RECORD OSGOSS ANALYSES REQUIRED LABORATORY NAME EN S S S CHAIN-OF-CUSTODY RECORD OSGOSS ANALYSES REQUIRED LABORATORY D ICANORATORY D (FOR LABORATORY D)	COMMENTS				NSCOMMENTS Sample Fa	SAMPLE COMPOSITE DESCRIPTION SAMPLE CONDITION UPON RECEIPT (FOR LABORATIORY) TEMPERATURE: SAMPLE CONDITION O INTACT O BROKEN COOLER SEAL. O INTACT O BROKEN White - Laboratory; Canary - Project File; Mania - Data Management
B-SI-CUS TOP	2Hat X	XXX	× × × ×	XXX	23 KK CONTROL CTIONS CONTROL CTION	COMPOSITE DESCRIPTION SAMPLE CONDITION UPON TEMPERATURE: COOLER SEAL: COOLER SEAL: Dink - Laboratory; Canary -
CHAIN-0	K THAFF	× × × × × × × × × × × × × × × × × × ×		さんしゃ しゃしゃの	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	COMPOSITE DESCRIPTION OF SAMIFILE CONDITION OF COLOUR SEAL. COOLIER SEAL. OTY, Pink - Laboratory
PURCHASE ONDER NO PROJECT NO. 2473 - 003 AMBILL NUMBER COUNTRY PROJECT CONTACT PROSE NUMBER PROJECT CONTACT PROSE NUMBER	NO OF CONTABER	- 100	1 (1)	7	1	general (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
PUNCHAS ONDER PUNCHAS ONDER PUNCHAS ONDER AMBHLANARR COLL PROJECT NO. COLL PROJECT CONTACT PROJECT CONTACT OF COL		7-11-05 1156 7-11-05 133-0	7-11-05 [340	7-11-55 1435 7-11-55 1435	LG5 CONCENTRATE OF	INCENTED BY (1)
TETRATECH 1230 Columbia Stock; Sultr 310 1340 Diego, CA 25101 (d.) 254-1864 1740 Diego, CA 25101 (d.) 254-1864 1740 Diego, CA 25101 (d.) 2410 200 Stock Diego, CA 25101 (d.) 200 Stock Diego, CA 2510 (d.) 200 Stock Di	DATE COLLECTED (**)		3 716			100 - 1/03 1/0
	or General Control	20-019	107	- 024 - 025 - 024		(S)
PROJECT NAME PROJECT NAME COPY SAMPLER NAME PROJECT CONTACT PROJECT CONTACT PROJECT CONTACT PROJECT CONTACT PROJECT CONTACT	000	19 1203 - 020 19 1203 - 020 19 1203 - 03	16 0003-	17 0003- 18 0003-	20 0003 -	COMPANY COMPANY

TETRATECH TEST Colorabis Section Series Ser



EMAX-SM02 Rev. 3 Appendix 2

SAMPLE RECEIPT FORM I

	P M. A.				
EMAX Courier	of Delivery		d By/Airbill	ECN	056055
☐ Client Delivery		PHIL H	TOUTER	Recepient	V. LUNA
☐ Third Party				Date	7-11-05
La moracy				Time	17:30
					
[] Client Name		COC Ins	spection		
Address		Courier Signature/Date/Ti			Date/Time/Location
☐ Client PM/FC		TAT	me	Analysis Re	equired
☐Tel #/Fax #	<u>.</u> .	Sample ID		Matrix	
Safety Issues	☐-None		•	Preservativ	
Comments:	Rad Screening Requ	High Concentrations expec	ted	Superfund	Site Samples
	t was account week	aco -			**
					**
		Packaging	repection		
Container	Cooler	Box	(1)	` -	_
Condition	Custody Seal	Intact			J
Packaging	Bubble Pack	Styrofoam	☐ Damag ☐ Sufficie	<u></u>	<u> </u>
Temperatures	Cooler 11 -	☑ Cooler 2		-	PLASTIC BAG
	Cooler 5	Cooler 6	Cooler 3		Cooler 4
	Cooler 9	Cooler 10	Cooler 7		Cooler 8
Comments:			Cooler 1	L1 [Cooler 12
1000	T				
LSCID	Client ID	Discre	oancy	Co	rrective Action
		NO ANALY	MO 212		- CONTO / NORON
		ALLT	UBEC		
		į		-	
					,
SCID : Lab Sample	Container ID				
EVIEWS	Outrainer ID		0 1	-	
Sample Labeling	X.L		1/201		Ka//2/
	07-11-05	SR		PM	14001
	- 1 11 05	Dai	e 1/1/02	Date	7/12/05



REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is les than RL but greater than MDL.
N		indicates presumptive evidence of a compound.
.·	В .	indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
Ε.	J	Indicates that the result is above the maximum calibration range.
*	. *	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	
	Contract Required Detection Limit
<u> </u>	Reporting Limit
MRL	Mothed Development
PQL	Method Reporting Limit
MDI	Practical Quantitation Limit
DO	Method Defection Limit
LUU	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.



LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 16144

SW 5035/8260B VOLATILE ORGANICS BY GC/MS

SDG#: 05G055A



CASE NARRATIVE

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

SDG:

05G055A

SW 5035/8260B VOLATILE ORGANICS BY GC/MS

Two (2) soil samples were received on 07/11/05 for Volatile Organic analysis by Method 5035/8260B in accordance with USEPA SW846, 3^{rd} ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blanks were free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE VOLATILE GRGANICS BY GC/MS

Laboratory Sample 10 VOO3G458 VOO3G45C VPC006SB G055-07

FN - Filename % Moist - Percent Moisture



SAMPLE RESULTS



SW 5035/8260B VOLATILE ORGANICS BY GC/MS

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144
Batch.No. : 05G055A
Sample ID: 0003-014
Lab Samp ID: G055-07
Lab File ID: RGB523 Calib. Ref.: RFB593 Instrument ID : T-003

PARAMETERS	RESULTS	, RL	MDL
	(ug/kg)	(ug/kg)	(ug/kg)
1,1,1-TRICHLOROETHANE	ND	4.9	
1,1,2,2-TETRACHLOROETHANE	ND	4.9	2
1,1,2-TRICHLOROETHANE	ND	4.9	2
1,1-DICHLOROETHANE	ND	4.9	4
1,1-DICHLOROETHENE	ND	4.9	2 2 2 2 2 2
1,2-DICHLOROETHANE	ND	4.9	5
1,2-DICHLOROPROPANE	ND	4.9	2
METHYL ETHYL KETONE	ND	49	2
2-HEXANONE	ND	49	4.9
4-METHYL-2-PENTANONE (MIBK)	ND	49	4.9
ACETONE	21J	49	4.9
BENZENE	ND	4.9	4.7
BROMODICHLOROMETHANE	ND	4.9	. 2
BROMOFORM	ND	4.9	2
BROMOMETHANE	ND	4.9	2
CARBON TETRACHLORIDE	ND	4.9	2
CHLOROBENZENE	ND	4.9	222222222222222222222222222222222222222
CHLOROETHANE	ND	4.9	5
CHLOROFORM	ND	4.9	2
CHLOROMETHANE	ND	4.9	2
CIS-1,2-DICHLOROETHENE	ND	4.9	2
CIS-1,3-DICHLOROPROPENE	ND	4.9	2
DIBROMOCHLOROMETHANE	ND	4.9	5
ETHYLBENZENE	ND	4.9	5
XYLENES	ND	15	5
MTBE	ND	9.8	ž
METHYLENE CHLORIDE	ND	4.9	2
STYRENE	ND	4.9	2
TETRACHLOROETHYLENE	ND	4.9	- 2
TOLUENE	ND	4.9	2 2 2 2 2
TRANS-1,2-DICHLOROETHENE	ND	4.9	Ž
TRANS-1,3-DICHLOROPROPENE	ND	4.9	- 2
TRICHLOROETHENE	ND	4.9	ž
VINYL ACETATE	ИD	49	Ž
VINYL CHLORIDE	ND	4.9	Ž
TERT-BUTYL ALCOHOL	ND	49	9.8
DIISOPROPYL ETHER	ND	4.9	2
ETHYL TERT-BUTYL ETHER	ND	4.9	Ž
TERT-AMYL METHYL ETHER	ND	4.9	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
		~
1,2-DICHLOROETHANE-D4	112	60-140
TOLUENE-D8	96	65-135
BROMOFLUOROBENZENE	96	65-135

R.L.: Reporting limit

* : Out of QC

E : Exceeded calibration range

B : Found in associated method blank

J : Value between R.L. and MOL

D : Value from dilution analysis D.O.: Diluted out
Preservation Date: 07/12/05 12:45



SW 5035/8260B VOLATILE ORGANICS BY GC/MS

Date Collected: 07/11/05
Date Received: 07/11/05
Date Extracted: 07/20/05 23:36
Date Analyzed: 23:36 : SES-TECH Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G055A Sample ID: 0003-027 Lab Samp ID: G055-20 Lab File ID: RGB524 Dilution Factor: .81 Matrix : SOIL Ext Btch ID: V003G45 % Moisture : 20.5 Calib. Ref.: RFB593 Instrument ID : T-003

PARAMETERS	RESULTS (ug/kg)	. RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	F 4	
1,1,2,2-TETRACHLOROETHANE	ND	5.1 5.1	2
1,1,2-TRICHLOROETHANE	ND	5.1	2 2 2 2 2 2
1,1-DICHLORGETHANE	ND	5.1	2
1,1-DICHLOROETHENE	. ND	5.1	2
1,2-DICHLOROETHANE	HD	5.1	2
1,2-DICHLOROPROPANE	ND	5.1	2
METHYL ETHYL KETONE	ND	51	2
2-HEXANONE	ND	51	5.1
4-METHYL-2-PENTANONE (MIBK)	ND	51	5.1
ACETONE	28J	51	5.1
BENZENE	ND	5.1	
BROMOD I CHLOROMETHANE	ND	5.1	2 2 2 2 2
BROMOFORM	ND	5.1	ັ້
BROMOMETHANE	ND	5.1	5
CARBON TETRACHLORIDE	ND	5.1	2
CHLOROBENZENE	ND	5.1	2
CHLOROETHANE	ND	5.1	2
CHLOROFORM	ND	5.1	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
CHLOROMETHANE	ND	5.1	2
CIS-1,2-DICHLOROETHENE	ND	5.1	2
CIS:1,3-DICHLOROPROPENE	ND	5.1	ž
DIBROMOCHLOROMETHANE	ND	5.1	2
ETHYLBENZENE XYLENES	ND	5.1	2
MTBE	ND	15	ž
***==	ND	10	2
METHYLENE CHLORIDE STYRENE	ND	5.1	2
	ND	5.1	2
TETRACHLOROETHYLENE TOLUENE	ИD	5.1	2
TRANS-1,2-DICHLOROETHENE	ND	5.1	2
TRANS-1,3-DICHLOROPROPENE	ND	5.1	2
TRICHLOROETHENE	ND	5.1	2
VINYL ACETATE	ND	5.1	2
VINYL CHLORIDE	ND	_51	2
TERT-BUTYL ALCOHOL	ND	5.1	
DIISOPROPYL ETHER	ND	_51	10
ETHYL TERT-BUTYL ETHER	ND	5.1	2
TERT-AMYL METHYL ETHER	ND	5.1	2 2
Anne with Methic Bluck	ND	5.1	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	117	60-140
TOLUENE-D8	93	65-135
BROMOFLUCROBENZENE	99	65-135

R.L.: Reporting Limit
* : Out of QC

Exceeded calibration range Found in associated method blank Value between R.L. and MDL Value from dilution analysis

D.O.: Diluted out Preservation Date: 07/12/05 12:45



QC SUMMARY



SW 5035/8260B VOLATILE ORGANICS BY GC/MS

Client : SES-TECH Date Collected: NA THERE : SES-IECH
PROJECT : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G055A
Sample ID: MBLK1S
Lab Samp ID: V003G45B
Lab File ID: RGB515
Ext Btch ID: V003G45
Calib. Ref.: RF8593 Date Received: 07/20/05
Date Extracted: 07/20/05 17:13
Date Analyzed: 07/20/05 17:13
Dilution Factor: 1 : SOIL : NA Matrix % Moisture Instrument ID : T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)

1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	· 5	ž
1,1,2-TRICHLOROETHANE	ИD	5	
1,1-DICHLORGETHANE	ND	5	õ
1,1-DICHLOROETHENE	ND	5	2 2 2 2
1,2-DICHLOROETHANE	ND	5 5	5
1,2-DICHLOROPROPANE	ND	5	5
METHYL ETHYL KETONE	ND	50	ž
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	,
ACETONE	ND	50	Š
BENZENE	ND	5	5 2
BROMODICHLOROMETHANE	ND	Ś	5
BROMOFORM	ND	. 5	2
BROMOMETHANE	ND	5	2
CARBON TETRACHLORIDE	ND	5	
CHLOROBENZENE	ND	š	5
CHLOROETHANE	ND	Š	5
CHLOROFORM	ND	5 5 5	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	š	5
XYLENES	ND	15	2
MTBE	ND	10	2
METHYLENE CHLORIDE	ND	5	2
STYRENE	ND	5	2 2
TETRACHLOROETHYLENE	ND	ź	2
TOLUENE	ND	5 5 5	2
TRANS-1,2-DICHLOROETHENE	ND	Ę	2
TRANS-1,3-DICHLOROPROPENE	ND	5	5
TRICHLOROETHENE	ND	5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND	5	2
TERT-BUTYL ALCOHOL	ND	5ố	10
DIISOPROPYL ETHER	ND	5	
ETHYL TERT-BUTYL ETHER	ND	ร์	2
TERT-AMYL METHYL ETHER	ND	5	2 2 2
		•	۷.

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLORGETHANE-D4	91	60-140
TOLUENE-DS	99	65-135
BROMOFLUOROBENZENE	102	65-135

Reporting Limit

Out of QC

: Out of CC

E: Exceeded calibration range

B: Found in associated method blank

J: Value between R.L. and MDL

D: Value from dilution analysis

D.O.: Diluted out

Preservation Date: 07/12/05 12:45



EMAX QUALITY CONTROL DATA LCS/LCD ANALYSIS

CLIENT:

PROJECT:

SES-TECH CAMP PENDLETON, UST SITE 16144

BATCH NO.:

05G055A

METHOD:

SW 5035/82608

% MOISTURE:

NA

MATRIX: SOIL
DILUTION FACTOR: 1
SAMPLE ID: MBLK1S
LAB SAMP ID: VOO3G45B
LAB FILE ID: RGB515
DATE EXTRACTED: 07/20/0517:13
OATE ANALYZED: 07/20/0517:13
VOO3G45
RFB593

V005G45C RGB513 07/20/0515:55 07/20/0515:55 V003G45 RFB593

DATE COLLECTED: NA DATE RECEIVED: 07/20/05

V003G45X RG8514 07/20/0516:34 07/20/0516:34 V003G45 RF8593

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT	MAX RPD
1,1-Dichloroethene Benzene Chlorobenzene Toluene Trichloroethene	DH DH DH DH DH	20 20 20 20 20	20.6 21.1 21.3 21.4 21.1	103 105 106 107 105	20 20 20 20 20	20.8 21.7 21.8 22 21.9	104 108 109 110 109	1 3 2 3,	65-135 65-135 65-135 65-135 65-135	30 30 30 30 30 30

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT
1,2-Dichloroethane-d4	50	48.3	97	50	48.4	97	60-140
Toluene-d8	50	48.4	97	50	48.6	97	65-135
Bromofluorobenzene	50	49.5	99	50	49.5	. 99	65-135



SW 5035/8260B VOLATILE ORGANICS BY GC/MS

Client : SES-TECH Client : SES-TECH Date Collected: NA
Project : CAMP PENDLETON, UST SITE 16144 Date Received: 07/20/05
Batch No. : 05G055A Date Extracted: 07/20/05 19:08
Sample ID: MBLK2S Date Analyzed: 07/20/05 19:08
Lab Samp ID: VPG006SB Dilution Factor: 1
Lab File ID: RGB517 Matrix : SOIL
Ext Btch ID: V003G45 X Moisture : NA
Calib. Ref.: RFB593 Instrument ID : T-003 Date Collected: NA

PARAMETERS	RESULTS (ug/kg)	. RL (ug/kg)	MDL (ug/kg)
********		******	
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	· 5	Ž
1,1,2-TRICHLOROETHANE	GN	5	ž
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	, ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2 2 2 2 2 2 5 5 5 5
METHYL ETHYL KETONE	ND	50	2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE BENZENE	ND	50	5
	ND	5	2
BROWOD I CHLOROMETHANE	ND	. 5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON TETRACHLORIDE CHLOROBENZENE	ND	5 5 5	222222222222222222222222222222222222222
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5 5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
XYLENES	ND	.5	2
MTBE	ND	15	2
METHYLENE CHLORIDE	ND	10	2
STYRENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND ND	5	2
TRANS-1,2-DICHLOROETHENE	ND ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND ND	5 5	2
TRICHLOROETHENE	ND ND	5 5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND ND	5	2
TERT-BUTYL ALCOHOL	NO	50	
DIISOPROPYL ETHER	ND ND	50 5	10
ETHYL TERT-BUTYL ETHER	ND	5	2
TERT-AMYL METHYL ETHER	ND	5	2 2
	ND	,	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT

1,2-DICHLOROETHANE-D4	112	60-140
TOLUENE-D8	99	65-135
BROMOFLUOROBENZENE	96	65-135

R.L.: Reporting limit
* : Out of QC

Exceeded calibration range
Found in associated method blank
Value between R.L. and MDL
Value from dilution analysis

D.O.: Diluted out Preservation Date: 07/12/05 12:45



LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 16144

SW 3550B/8310 POLYNUCLEAR AROMATIC HYDROCARBONS

SDG#: 05G055A



CASE NARRATIVE

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

SDG:

05G055A

SW 3550B/8310 POLYNUCLEAR AROMATIC HYDROCARBONS

Two (2) soil samples were received on 07/11/05 for Polynuclear Aromatic Hydrocarbons analysis by Method 3550B/8310 in accordance with SW846, 3rd edition and EMAX-8310 SOP.

1. Holding Time

Analytical holding time was met. Extraction was started and completed on 07/18/05.

2. Calibration

Initial calibration was seven points. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals. Recoveries were within 85-115%.

3. Method Blank

Method blank was free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoveries of samples G055-07 and 20 were out of QC limits. Recovery of G055-07T could not be evaluated due to dilution.

5. Lab Control Sample / Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. Results were reported from UV detector and FL detector was for confirmation only. Acenaphthylene, which had no response in FL detector, was confirmed by GC/MS for results above R.L.

Sample G055-07 could only be confirmed by GC/MS-SIM at 100x dilution due to high viscosity of the sample.



LAB CHROWICLE POLYNUCLEAR AROMATIC HYDROCARBONS

Project . Callo	TAMP DRUDI ETON 11ST STTS								101
					\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	11 11 11 11 11 11 11 11 11 11 11 11 11			Instrument 10 : 1034
					SOIL				
ient	Laboratory	Dilution	×	Analysis	Extraction	Sample	Calibration Prep.	on Prep.	•
Sample 1D	Sample 1D	Factor	Hoist	Datelime	DateTime	Data FN	Data FK	Batch	Notes
			:		1 1 1 1 1 1 1 1 1 1 1 1 1				
LK1S	PAG0034B		¥	07/19/0512:59	07/18/0511:30	RG19003A	RG19002A	PAG003U	Method Blank
:518	PAG00341	-	×	07/19/0513:24	07/18/0511:30	RG19004A	RG19002A	PAG0031	Lab Control Sample (LCS)
D1S	PAG003MC	_	KK	07/19/0513:50	07/18/0511:30	RG19005A	RG190024	PAGOGSU	CS Duol icate
103-014	4055-07	-	10.2	07/19/0514:40	07/18/0511:30	RG19007A	RG19002A	PAGOOTU	Field Sample
103-014DL	170-5500	5	10.2	07/19/0515:31	07/18/0511:30	RG19009A	RG19002A	PAGDOSU	Diluted Sample
103-027	6055-20	•	10.5	07/10/0514-15	07/18/0511-30	00100064	95100024	DACOUZE	Einld Comple

FN - Filename % Moist - Percent Moisture



SAMPLE RESULTS



SW 35508/8310 POLYNUCLEAR AROMATIC HYDROCARBONS

___________ : SES-TECH Date Collected: 07/11/05 Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G055A
Sample ID: 0003-014 Date Received: 07/11/05 Date Extracted: 07/18/05 11:30 Date Analyzed: 07/19/05 14:40 Lab Samp ID: G055-07 Lab File ID: RG19007A Dilution Factor: 1 Matrix : SOIL
% Moisture : 10.2
Instrument ID : T-034 Ext Btch ID: PAG003W Calib. Ref.: RG19002A

PARAMETERS	RESULTS (ug/kg)		RL (ug/kg)	MDL (ug/kg)
NAPHTHALENE	(4100E)	12100	19	11 11
ACENAPHTHYLENE	(ND)		19	9 NA
ACENAPHTHENE	(360)	1	19	11 11
FLUORENE '	(1700E)		19	2.2 2.2
PHENANTHRENE	(2700E)		19	1.111.1
ANTHRACENE		(ND)	19	1.1 1.1
FLUORANTHENE	(ND)		19	2.2 2.2
PYRENE	(ND)	1	19	1.1 1.1
BENZO(A)ANTHRACENE	(1800)		19	1.1 1.1
CHRYSENE	(210E)	1	19	1.1 1.1
BENZO(B)FLUORANTHENE	(ND)		19	2.2 2.2
BENZO(K)FLUORANTHENE	(570)		19	1.1 1.1
BENZO(A)PYRENE		(ND)	19	1.1 1.1
		(ND)	19	4.5 4.5
DIBENZO(A, H)ANTHRACENE		(ND)	19	2.2 2.2
BENZO(G,H,I)PERYLENE				
INDENO(1,2,3-CD)PYRENE	42	(ND)	19	1.1 1.1
SURROGATE PARAMETERS	% RE	COVERY	QC LIMIT	
P-TERPHENYL-D14	(1056*)	258*	50-130	

RL: Reporting Limit

Left of | is related to UV detector; Right of | related to FL detector Final result indicated by ()

(*): Out of QC limit due to matrix interference



SW 35508/8310 POLYNUCLEAR AROMATIC HYDROCARBONS

: SES-TECH Date Collected: 07/11/05 Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G055A
Sample ID: 0003-014DL
Lab Samp ID: G055-077
Lab File ID: RG19009A
Ext 8tch ID: PAG003W
Calib. Ref: RG19002A Date Received: 07/11/05 Date Extracted: 07/18/05 11:30 Date Analyzed: 07/19/05 15:31 Dilution Factor: 10 : 501L Matrix % Moisture : 10.2 Instrument ID : T-034

PARAMETERS	RESULTS (ug/kg)		RL (ug/kg)	MDL (ug/kg)
NAPHTHALENE	(4100)	12200	· 190	110 110
ACENAPHTHYLENE	(ND)		190	90 NA
ACENAPHTHENE		1200	190	110 110
FLUORENE .	(1700)		190	22 22
PHENANTHRENE	(2800)	1	190	11 11
ANTHRACENE		(ND)	190	11111
FLUORANTHENE	(ND)		190	
PYRENE		170J	190	22 22
BENZO(A)ANTHRACENE	(1700)	1		11 11
CHRYSENE	(210)		190	11 11
BENZO(B)FLUORANTHENE		ı.	190	11 11
	(ND)	1 '	190	22 22
BENZO(K)FLUORANTHENE	(580)		190	11 11
BENZO(A)PYRENE	68J	(ND)	190	11/11
DIBENZO(A,H)ANTHRACENE	220	(ND)	190	45 45
BENZO(G,H,I)PERYLENE	(ND)	ND	190	22 22
INDENO(1,2,3-CD)PYRENE	31 J	(ND)	190	11 11
SURROGATE PARAMETERS	% REG	COVERY	QC LIMIT	,

P-TERPHENYL-D14	(00)	DO	50-130	

RL: Reporting Limit

Left of | is related to UV detector; Right of | related to FL detector Final result indicated by ()

DO: Diluted Out



SW 3550B/8310 POLYNUCLEAR AROMATIC HYDROCARBONS

Client : SES-TECH		Date Collected: 07/11/05
Project : CAMP PENDLETON, US	T SITE 16144	Date Received: 07/11/05
Batch No. : 05G055A		Date Extracted: 07/18/05 11:30
Sample ID: 0003-027		Date Analyzed: 07/19/05 14:15
Lab Samp ID: G055-20		Dilution Factor: 1
Lab File ID: RG19006A		Matrix : SOIL
Ext Btch ID: PAGOO3W		% Moisture : 10.5
Calib. Ref.: RG1900ZA		Instrument ID : T-034
	RESULTS	RL MDL
PARAMETERS	(ug/kg)	(ug/kg) (ug/kg)
NAPHTHALENE	18J (ND)	' 19 11 11
ACENAPHTHYLENE	(ND) NA	19 9.1 NA
ACENAPHTHENE	(17J) 15J	19 11 11
FLUORENE '	(83) 37	19 2.2 2.2
PHENANTHRENE	(95) 44	19 1.1 1.1
ANTHRACENE	(71) 71	19 1.1 1.1
FLUORANTHENE	170 (ND)	19 2.2 2.2
PYRENE	(ND) 8.2J	19 1.1 1.1
BENZO(A)ANTHRACENE	(ND) ND	19 1.1 1.1
CHRYSENE	(62) 37	19 1.1 1.1
BENZO(B)FLUORANTHENE	(ND) ND	19 2.2 2.2
BENZO(K)FLUORANTHENE	(21) 1.91	19 1.1 1.1
BENZO(A)PYRENE	101 (ND)	19 1.1 1.1
DIBENZO(A,H)ANTHRACENE	10J (ND)	19 4.5 4.5
BENZO(G,H,I)PERYLENE	7.8J (ND)	19 2.2 2.2
INDENO(1,2,3-CD)PYRENE	1.2J (ND)	19 .1.1 1.1
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
P-TERPHENYL-D14	(269*) 137*	50-130
i .		

RL: Reporting Limit
Left of | is related to UV detector; Right of | related to FL detector
Final result indicated by ()
(*): Out of QC limit due to matrix interference



QC SUMMARIES



SW 35508/8310 POLYNUCLEAR AROMATIC HYDROCARBONS

<u> </u>			
Client : SES-TECH		Date Collected:	
Project : CAMP PENDLETON,	UST SITE 16144		
Batch No. : 05G055A		Date Extracted:	
Sample ID: MBLK1S		Date Analyzed:	
Lab Samp ID: PAGOO3WB		Dilution Factor:	
Lab File ID: RG19003A		Matrix :	
Ext Btch ID: PAGO03W	•	(NA
Calib. Ref.: RG19002A		Instrument ID :	
#E====################################		-======================================	
	950111.79		MD.
	RESULTS	RL	MDL
PARAMETERS	(ug/kg)	(ug/kg)	(ug/kg)
	cup v luo	17	10 10
NAPHTHALENE	(ND) ND	17	8.1 NA
ACENAPHTHYLENE	(ND) NA	17	10 10
ACENAPHTHENE	(ND) ND		
FLUORENE	(ND) ND	17 17	2 2 1 1
PHENANTHRENE	(ND) ND	· ·	
ANTHRACENE	(ND) ND	17	1 1
FLUORANTHENE	(ND) ND	17	2 2
PYRENE	(ND) ND	17	111
BENZO(A)ANTHRACENE	(ND) ND	17	1 1
CHRYSENE	(ND) ND	17	1 1
BENZO(B) FLUORANTHENE	(ND) ND	17	2 2
BENZO(K)FLUORANTHENE	(ND) ND	17	1 1
BENZO(A)PYRENE	(ND) ND	17	111
ちょうというのきょ けったいていひんだたいだ	(ND V ND	17	616

CHRIDENE	מתונטה	
BENZO(B) FLUORANTHENE	(ND) ND	17
BENZO(K) FLUORANTHENE	(ND) ND	17
BENZO(A)PYRENE	(ND) ND	17
DIBENZO(A, H)ANTHRACENE	(ND) ND	17
BENZO(G.H.I)PERYLENE	(ND) ND	17
INDENO(1,2,3-CD)PYRENE	(ND) ND	17
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
P-TERPHENYL-D14	(92) 81	50-130
1		

RL: Reporting Limit Left of \mid is related to UV detector; Right of \mid related to FL detector Final result indicated by ()



EMAX QUALITY CONTROL DATA LCS/LCD ANALYSIS

SES-TECH CAMP PENDLETON, UST SITE 16144 05G055A SW 3550B/8310 CLIENT: PROJECT: BATCH NO.:

DATE COLLECTED: NA DATE RECEIVED: 07/18/05 % MOISTURE: PAGD03NC RG19005A 07/18/0511:30 07/19/0513:50 PAG003N RG19002A PAG0034L RG19004A 07/18/0511:30 07/19/0513:24 PAG0034 RG19002A 07/18/0511:30 07/19/0512:59 PAG003N RG19002A MBLK1S PAG003WB RG19003A SOIL MATRIX: SOI DILUTION FACTOR: 1 SAMPLE ID: MBL LAB SAMP ID: PAG LAB FILE ID: RCI DATE EXTRACTED: 07/ DATE ANALYZED: 07/ PREP. BATCH: PAG CALIB. REF: RCI NETHOD:

ACCESSIOM:

PARAHETER	BLNK RSLT (ug/kg)	SPIKE AMT (vg/kg)	BS RSLT (ug/kg)	BS REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD .	OC LIMIT	HAX RPD
1144111			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	*********	1 1 1 1 1 1	* * * * * * * * * * * * * * * * * * * *		1 1 1		
Waphthalene	OND) IND	1330	(1120) 1040	(84) 78	1330	(1140) [1050	(86) [79	(2) [1	40-130	20
Acenaphthylene	(MD) NA	2670	(2500) NA	(94) NA	2670	(2530) NA	(95) INA	CO	40-130	. 05
Acenaphthene	CN)	1330	(1210) 1230	(91) 92	1330	(1230) 1230	(92) 92	(2)	40-130	2
Fluorene	GK) (GK)	267	(247) 211	(93) 79	267	(250) 211	(36)	(1)	50-130	2
Phenanthrene	ON) (ON)	133	(126) 108	(95) 81	133	(127) 108	(95) 81	(1)	50-130	50
Anthracene	CX (CX)	133	(126) 115	(95) 86	133	(127) 114	(95) 86	11(1)	50-130	20
Fluoranthene	<u>94</u> (04)	292	(272) 240	(102) 90	267	(273) 239	(102) 90	0 (0)	50-130	20
Pyrene		153	(132) 115	98 (66)	133	(132) 115	66)	000	40-130	2
Benzo(a)anthracene	<u>Q.</u> (Q.)	133	(132) 120	06)(66)	133	(131) 120	06 (86)	(1)	50-130	22
Chrysene	(A)	133	(134) 119	(101) 89	133	(134) 119	(101) 89	0) (0)	50-130	S
Benzo(b) fluoranthene	<u>9</u> (9€)	267	(569) 245	(101) 92	267	(270) 244	(101) 91	0) (0)	50-130	ድ
Benzo(k) fluoranthene	ON)	133	(140) 123	(105) 92	133	(142) 123	(107) 92	(1)	50-130	20
Benzo(a)pyrene	ON (ON)	133	(138) 123	(104) 92	133	(140) 123	(105) 92	(1)	50-130	S
Dibenzo(a,h)anthracene	CND)	267	(245) 220	(35) 85	267	(247) 212	(93)	(1) 4	50-130	20
Benzo(g,h,i)perylene	ON) (ON)	267	(280) 272	(105) 102	267	(282) 273	(106) 102	3	50-130	20
Indeno(1,2,3-cd)pyrene	ON) (ON)	133	(133) 133	(100)	133	(134) 135	(101) 102	3	50-130	20

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE ANT (ug/kg)	BSD RSLT (ug/kg)	BSD QC LIMIT X REC (X)	OC LIMIT
		1		1 1 1 1 1			
p-Terphenyl-d14	167	167 (157) 138	(94) 83	167	(157) 137	(%)	50-130

6009

We validation lectures of

NUMBER 12396

1230 Columbia Street, Sultr 500 San Diego, CA 92101 (619) 234-8696

TETRA TECH

CHAIN-OF-CUSTODY RECORD

GROUNDWATER SAMPLING ঞ 8 START END DEPTH Project Information Do not submit to Laboratory SAMPLING COMMENT: Faredons Trip Blank LOCATION MSh M M-H M W-3 SAMPLE CONDITION: INTRACT IN BROKEN EMAX 381-550 COMMENTS ABORATORY D FOR LABORATORY LABORATORY NAME SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) D INTACT D BROKEN ANALYSES REQUIRED LABORATORY INSTRUCTIONS/COMMENTS COMPOSITE DESCRIPTION TEMPERATURE: COOLER SEAL: SES-TECH OSSSSO 2973.0030.0005 COURTER NUMBER 949-7549 LEVEL ĸά NO. OF CONTAINER 1 3 10 RECHVED BY (Spranne) α 1-21-05 1250 =8 h-21-05/1042 TIME 1220 JUS H-21-05/2945 S.K MErics 1-21-05 121-05 PATE 7.27 CK рате соцестер <u>の</u> 別の 7.A DATE Micha Brught amp Rendlaton 16144 (XXXX - OD& 0003 - 056 - 057 SE SE 2003 - 059 222-220 ELINQUISHED BY (Signature) SAMPLE ID IY (Signatu SITE という 200% 000 OMPANY

White - Laboratory, Pink - Laboratory, Canary - Project File; Manila - Data Management





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CLIENT:

SES-TECH

CN 0030

PROJECT:

CAMP PENDLETON, UST SITE 16144

SDG:

05G188

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GC-VOA	**	4000 –
GC-SVOA	METHOD 3520C/8015B	5000 - 5048
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METALS	**	7000 –
WET	**	8000
OTHERS	**	9000 –

^{** -} Not Requested









Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Date: 08-09-2005 EMAX Batch No.: 05G188

Attn: Sevda Aleckson

SES-TECH 1940 E. Deere Avenue, Suite 200 Santa Ana CA 92705

Subject: Laboratory Report
Project: Camp Pendleton, UST Site 16144

Enclosed is the Laboratory report for samples received on 07/22/05. The data reported include:

Sample ID	Control #	Col Date	Matrix	Analysis
0003-055	G188-01	07/21/05	WATER	VOLATILE ORGANICS BY GC/MS
0003-056	G188-02	07/21/05	WATER	SEMIVOLATILE ORGANICS SIM
****		• -		VOLATILE ORGANICS BY GC/MS
				TPH DIESEL
0003-057	6188-03	07/21/05	WATER	SEMIVOLATILE ORGANICS SIM
		•		VOLATILE ORGANICS BY GC/MS
				TPH DIESEL
0003-058	G188-04	07/21/05	WATER	SEMIVOLATILE ORGANICS SIM
0003-036	G100 04	01, 21, 05	4111211	VOLATILE ORGANICS BY GC/MS
				TPH DIESEL
		07/04/05		
0003-059	G188-05	07/21/05	WATER	SEMIVOLATILE ORGANICS SIM
	•	•		VOLATILE ORGANICS BY GC/MS
				TPH DIESEL
0003-060	G188-06	07/21/05	WATER	SEMIVOLATILE ORGANICS SIM
				VOLATILE ORGANICS BY GC/MS
				TPH DIESEL

The results are summerized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincérely yours,

Kam Y. Pang, Ph.D. Laboratory Director

	,	•		•				4				-		•	
NUMBER 12396 056/88	LABORATORY NAME ÉMAX	LABORATORY ID (FOR LABORATORY)	COMMENTS		,	4	,						•	TORY) D. BROKEN	
NUMBER CHAIN-OF-CUSTODY RECORD	ANALYSES REQUIRED	93108			XXX	メメメ	X X	X			LABORATORY INSTRUCTIONS/COMMENTS	COMPOSITE DESCRIPTION	1, 3.5, 3.2, 3.6	ITION UPON RECEIPT (FOR LABORA) SAMPLE CONDITION:	A TINTACT U BROKEN
CHAIN-OF-C	SES-TECH 055850 modective 79.3.3 M.20.0005	COUPLIENCE PROMEIN PRO	NO. OF CONTADIER	2 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	. で ス 3	スメス	56 5 X X PRUX	5 5 X 62 X	70		COMPANY THE	PAY (MINE)	SMAY	THE THE	White I showshop Birk I showed
TETRATECH 1230 Columbia Greet, Saite 500 3nn Deepe, CA 72101 (619) 24496	16144	ant .	DATE	0003-055 121-05 0936 0003-056 1-21-05/0945		- 058 7-21-05 1195	-059 7-2-05 1256	000 1245 305	/			I I	5 17.5g.	22 05	THE CONDANY
E	SITE PROJECT LOCATION	SAMPLER NAME LOCATION PROJECT CONTACT SEV 24	SA	0003-	6000	0003-	0003-059	0003-000		(THE NONISHED BY	RELINGUISHED BY (Supranur)) FILE	Ð	EM

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

anary - Project File



EMAX-SM02 Rev. 3 Appendix 2

SAMPLE RECEIPT FORM 1

	of Delivery	Delivered By/Airbill		ECN	05 4188
EMAX Courier		SCE COC		Recepient	I PATEL
Client Delivery				Date	7-22-05
☐ Third Party				Time	1415
		,			•
_		COC Inspection		1	
Gient Name		Sampler Name		Sampling	Date/Time/Location
Address		Uniter Signature/Date/Time		Analysis R	lequired
		TAT		Matrix	
1el #/Fax #	, .	Sample ID		Preservati	ve (if any)
Safety Issues	. Tone	High Concentrations expected		Superfund	Site Samples
Comments:	Rad Screening Requir	<u>ජේ</u>			
		- Davidson in the second			
Container	Cooler S	Packaging Inspection			
Condition		∐ Box			
Packaging	Ustody Seal Bubble Pack	Intact	☐ Dama	-	□ . ,
Temperatures	· Ecoler 1 3.0 C	Styrofoam	∏ S uffic	cient	TCooler 4 3.6'C
Lemberamies	Cooler 5	☑ Cooler 2 3.5 °			
		Cooler 6			Cooler 8
Comments:	Cooler 9	Cooler 10	Cooler	· 11	Cooler 12
Comments.					

LSCID	Client ID	Discrepancy			orrective Action
		Discrepancy			Offective Action
			$\overline{}$	<u> </u>	
				 	
					•
				-	
-			7 mm2 77 mm3		
		77	12.0		
LSCID : Lab Samp	le Container ID			<u> </u>	
REVIEWS		• //	1		\bigcirc 11
Sample Labeling	1	SRF (/)	Polin'	/ PM	DNd
Date	7	Date 7/0	5/25	Date	17/25/05
			-/ -		11015
					· · · · · · · · · · · · · · · · · · ·



REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifler	AFCEE Qualifier	Description
J	je j	Indicates that the analyte is positively identified and the result is les than RL but greater than MDL
N		indicates presumptive evidence of a compound.
B	В	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E .	J	indicates that the result is above the maximum calibration range.
*	. *	Out of QC limit.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.



LABORATORY REPORT FOR

, SES-TECH

CAMP PENDLETON, UST SITE 16144

SW 5030B/8260B VOLATILE ORGANICS BY GC/MS

SDG#: 05G188



CASE NARRATIVE

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

SDG:

05G188

SW 5030B/8260B VOLATILE ORGANICS BY GC/MS

Six (6) water samples were received on 07/22/05 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3rd ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and callbration were carried out at 12-hour interval. All QC requirements were met with the following exception:

Date	QC	Compound	Outlier	QCLimit
07/31/05	DCC	Acetone	30%	25%
07/31/05	DCC	Vinyl Acetate	32%	25%
08/01/05	DCC	Vinyl Acetate	160%	25%

3. Method Blank

Method blanks were free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

LAB CHRONICLE VOLATILE ORGANICS BY GC/NS

10 : 1-005		totes		thod Blank	b Control Sample (LCS)	S Duplicate	eld Sample	eld Sample	thod Blank	b Control Sample (LCS)	S Duplicate	eld Sample	eld Sample	Field Sample	eld Sample
Instrument ID		rep.		70051364	7005664	7005064	7005064	7005664	005668	7005668	005668	7005668	7005668	/005G68	M05668
	;	Calibration F Data FW		RG0142	RCD142	RG0142	RG0142	800142	RG0142	RG0142	RG9142	RG0142	RG0142	RG0142	RC0142
		Sample Data FN	1 1 1 1 1	RG0761	RGQ758	RG0759	RGQ769	R6073	RG0801	864798	RG0799	RG0810	RG0811	RG9812	RG0813
	WATER	Extraction DateTime		07/31/0503:39	77-1050/15/20	07/31/0502:24	07/31/0508:42	07/31/0509:20	08/01/0504:56	08/01/0503:02	08/01/0503:40	08/01/0510:35	08/01/0511:13	08/01/0511:51	08/01/0512:29
	-	Analysis Datelime		07/31/0503:39	07/31/0501:47	07/31/0502:24	07/31/0508:42	07/31/0509:20	08/01/0504:56	08/01/0503:02	08/01/0503:40	08/01/0510:35	08/01/0511:13	08/01/0511:51	08/01/0512:29
		X Koist	1 1 1 1	Ž	4	ž	ž	ž	4	<u>4</u>	×	¥	¥	¥	돛
16144		Dilution Factor	1 1 1				-	-	•-		-	-			•
CAMP PENDLETON, UST SITE		Laboratory Sample 1D	1 1 1 1 1	VO056640	19995000	V005664C	6188-028	G188-03R	Vn056680	V005668L	V005668C	G188-01R	5188-04R	5188-058	G188-06R
. CANP	 	QI.	::				9	11	. '	ž		ič.	. 60	10	20.

FN - Filename % Moist - Percent Moisture



SAMPLE RESULTS



Client : SES- Project : CAMP	TECH			Date	Collected:	
Project : CAMP	PENDLETON,	UST SITE	16144	Date	Received:	
Batch No. : UDGI	80			pate	Extracted:	08/01/05 10:35
Sample ID: 0003	-055			Date	Analyzed:	08/01/05 10:35
Lab Samp ID: G188	3-01R			Dilut	ion Factor:	1
Lab File ID: RGQ8				Matri	x ;	WATER
Ext Btch ID: VO05						NA
Calib. Ref.: RGQ1					ument ID :	
			======			
				RESULTS	RL	MDL
PARAMETERS			,	(ug/L)	' (ug/L)	(ug/L)
FARAFILIENS				(49/4)	(48,0)	(49/6/
	UADE			ND	5	.2
1,1,1-TRICHLOROET					. 1	ž.
1,1,2,2-TETRACHLO				1110		
1,1,2-TRICHLORDET				ND	5	.2
1,1-DICHLOROETHAN				ND	5	.2.
1,1-DICHLOROETHEN			40.4	ND	5	.2
1,2-DICHLOROETHAN			•	ND	.5	.2
1,2-DICHLOROPROPA	NE			ND	5	.2
METHYL ETHYL KETO	INE			ND	50	.2
2-HEXANONE				ND	50	5
4-METHYL-2-PENTAN	ONE (MIBK)			ND	50	5 5 5
ACETONE				ND	50	
BENZENE				ND	.5	.2
BROMOD I CHLOROMETH	ANE			ND	5	.2
BROMOFORM	.,,			ND	5	.3
BROMOMETHANE				ND	Š	.ž
CARBON TETRACHLOR	INF			ND	.5	.2
CHLOROBENZENE				ND	5	.2
CHLOROETHANE				ND	5	.2
CHLOROFORM				ND	5	.2
				ND	ź	• • •
CHLOROMETHANE	TIPME			ND	5	.2 .2
CIS-1,2-DICHLOROE					.5	.2
CIS-1,3-DICHLOROP				ND	.5	.2
DIBROMOCHLOROMETH	IANE			ND	.5	
ETHYLBENZENE				КD		.2 .2
XYLENES				ND	5	٠.٤
MTBE				ND	1	.2 .5
METHYLENE CHLORID	E			ΝD	5	.5
STYRENE				ND	5	.2 .2
TETRACHLOROETHYLE	NE			ND	5	.2
TOLUENE				ND	.5	.2
TRANS-1,2-DICHLOR	OETHENE			ND	5	.2
TRANS-1,3-DICHLOR	OPROPENE			ND	.5	.2
TRICHLOROETHENE .				ND	5	.2
VINYL ACETATE				KD	50	.5
VINYL CHLORIDE				ND	.5	.2
TERT-BUTYL ALCOHO	11.			ND	20	5
DIISOPROPYL ETHER				ND	5	.ž
ETHYL TERT-BUTYL				ND	5	.2
TERT-AMYL METHYL				ND	Š	.2
THE POST METHE				1700	_	••
SURROGATE PARAMET	EDC		% pc	COVERY	QC LIMIT	
SURKUGATE FARAMET				COVERT	40 61611	
				100	65-135	
1,2-DICHLOROETHAN	E-04			84	75-125	
TOLUENE-DB	r			100	75-125	
BROMOFLUOROBENZEN	C			100	13-123	
•						

R.L.: Reporting limit

* : Out of QC

E : Exceeded calibration range

B : Found in associated method blank

J : Value between R.L. and MDL

D : Value from dilution analysis

D.O.: Diluted out



Date Collected: 07/21/05
Date Received: 07/21/05
Date Extracted: 07/31/05 08:42
Date Analyzed: 07/31/05 08:42
Dilution Factor: 1
Matrix : WATER
X Moisture : NA
Instrument ID : T-005 Client: SES-TECH
Project: CAMP PENDLETON, UST SITE 16144
Batch No.: 056188
Sample: ID: 0003-056
Lab Samp ID: G188-02R
Lab File: ID: RGQ769
Ext Btch ID: V005664
Calib Paf: PE0142 Calib. Ref.: RGQ142

PARAMETERS	RESULTS (ug/L)	RL '(ug/L)	MDL (ug/L)
PARAMETERS	(49/6/	· (ug/L)	(ug/c/
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND .	· 1	.2
1,1,2-TRICHLOROETHANE	ND .		
1.1-DICHLOROETHANE	ND	5 5	.2.2.2.2.5.5.5.2
1,1-DICHLOROETHENE	ND	. 5	
1.2-DICHLOROETHANE	> ND	.5	
1,2-DICHLOROPROPANE	ND ND	· 5	,,
METHYL ETHYL KETONE	∠ ND	50	"5
2-HEXANONE	ND	50	٠.
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	2
BROMOD I CHLOROMETHANE	ND	Š	.2
BROMOFORM	ND	ξ	٠,٢
BROMOMETHANE	ND	έ	.3
CARBON TETRACHLORIDE	ON CIN	5 5 .5	.2
CHLOROBENZENE	ND ND	.5	.2
CHLOROETHANE	ND	ž	٠
CHLOROFORM	ND	5 5 5 5 5	.2 .2 .2
CHLOROMETHANE	ND	,	٠,٤
CIS-1,2-DICHLOROETHENE	ND	ź	.2
CIS-1,2-DICHLOROPROPENE	ND	í	.2
DIBROMOCHLOROMETHANE	ND ND	5	.2
ETHYLBENZENE	ND	.ś	٠٤
· XYLENES	ND	5	٠٤
MTBE	ND	ī	.2 .2 .2
METHYLENE CHLORIDE	ND		.5
STYRENE	ND	ź	.2
TETRACHLOROETHYLENE	ND	ź	.2
TOLUENE	ND	5 5 5 .5	.2
TRANS-1,2-DICHLOROETHENE	ND	• 5	٠,٤
	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE TRICHLOROETHENE	ND	.5	, 5
	ND	50	.5
VINYL ACETATE VINYL CHLORIDE	ND	.5	.2
	ND	20	- 2 5
TERT-BUTYL ALCOHOL		20 5	2
DIISOPROPYL ETHER	ND ND		.2
ETHYL TERT-BUTYL ETHER TERT-AMYL METHYL ETHER	UN D	5 5	.2
IEKITAMIL MEINIL EINEK	พบ	,	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	83	65-135
TOLUENE-D8	82	75 - 125
ODOMOEI LIODORENZENE	76	75 - 125

Reporting limit Out of QC Exceeded calibration range Found in associated method blank J : Value between R.L. and MDL D : Value from dilution analysis D.O. : Diluted out



Date Collected: 07/21/05
Date Received: 07/22/05
Date Extracted: 07/31/05 09:20
Date Analyzed: 07/31/05 09:20
Dilution Factor: 1
Matrix : WATER
% Moisture : NA
Instrument ID : T-005 Client : SES-TECH
Project : CAMP PENDLETON, UST SIYE 16144
Batch No. : D5G188
Sample ID: 0003-057
Lab Samp ID: G188-03R
Lab File ID: RGQ770
Ext Btch ID: V005664
Calib. Ref.: RGQ142 Client : SES-TECH

BADANETERS	RESULTS (ug/L)	. RL . (ug/L)	MDL (ug/L)
PARAMETERS	(ug/L)	(ug/L/	(49/1)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND .	ι 1	.2
1,1,2-TRICHLOROETHANE	ND	Ś	
1,1-DICHLOROETHANE	ND	Š	.5
1,1-DICHLOROETHENE	ND	5	
1,2-DICHLOROETHANE	· ND	.5	.2 .2 .2 .2
1.2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	. ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	. 50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMOD I CHLOROMETHANE	ND		.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5 5 5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	55522322222222
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND .	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5 ·	,2
ETHYLBÉNZENE	ND	.5	.2
XYLENES	.43J	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.2 .2 .5 .2
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5 1 5 5 5	.2
TOLUENE	.64	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	סא	.5	.2
TRICHLOROETHENE	KD	5	.2
VINYL ACETATE	ND	50	.2 .2 .5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	.2 .2 .2
DIISOPROPYL ETKER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT

1.2-DICHLOROETHANE-D4	79	65-135
TOLUENE-08	82	75 <i>-</i> 125
BROMOFLUOROBENZENE	85	75 - 125

R.L.: Reporting limit

* : Out of QC

E : Exceeded calibration range

B : Found in associated method blank

J : Value between R.L. and MDL

D : Value from dilution analysis

D.O.: Diluted out



Client : SES-TECH Project : CAMP PENDLETON, USY SITE Batch No. : 056188 Sample ID: 0003-058 Lab Samp ID: G188-04R Lab File ID: RG0811 Ext Btch ID: V005668 Calib. Ref.: RG0142	Date Collected: 07/21/05 16144 Date Received: 07/22/05 Date Extracted: 08/01/05 11:13 Date Analyzed: 08/01/05 11:13 Dilution Factor: 1 Matrix : WATER % Moisture : NA Instrument ID : T-005
PARAMETERS	RESULTS RL MDL (ug/L) ' (ug/L) (ug/L)
	(03/1) (05/1) (03/1)
1,1,1-TRICHLORGETHANE	ND 5 .2
1,1,2,2-TETRACHLOROETHANE	ND. 1 .2
1,1,2-TRICHLOROETHANE	ND 5 .2
1.1-DICHLOROETHANE	ND 5 .2
1,1-DICHLOROETHENE	ND 5 2
1,2-DICHLOROETHANE	- ND .5 .2
1.2-DICHLOROPROPANE	ND 5 .2
MÉTHYL ETHYL KETONE	ND 50 .2
2-HEXANONE	₩D 50 5
4-METHYL-2-PENTANONE (MIBK)	ND 50 5
ACETONE	ND 50 5
BENZENE	ND .5 .2
BROMODICHLOROMETHANE	ND 5 .2
BROMOFORM	ND 5 .3
BROMOMETHANE	ND 5 .2
CARBON TETRACHLORIDE	ND .5 .2
CHLOROBENZENE	ND 5 .2
CHLOROETHANE	ND 5 .2
CHLOROFORM	ND 5 .2 ND 5 .2 ND 5 .2
CHLOROMETHANE	ND 5 .2
CIS-1,2-DICHLORGETHENE	ND 5 .2
CIS-1,3-DICHLOROPROPENE	ND .5 .2
DIBROMOCHLOROMETHANE	ND 5 .2
ETHYLBENZENE	ND .5 .2
XYLENES	KD 5 .2
MTBE	ND 1 .2
METHYLENE CHLORIDE	ND 5 .5 ND 5 .2
STYRENE TETRACHLOROETHYLENE	ND 5 .2
TOLUENE .	.24」 .5 .2
TRANS-1,2-DICHLOROETHENE	ND 5 .2
TRANS-1.3-DICHLOROPROPENE	ND .5 .2
TRICHLOROETHERE	ND 5 .2
VINYL ACETATE	ND 50 .5
VINYL CHLORIDE	ND .5 .2
TERT-BUTYL ALCOHOL	ND 20 5
DIISOPROPYL ETHER	ND 5 .2
ETHYL TERT-BUTYL ETHER	ND 5 .2
TERT-AMYL METHYL ETHER	ND 5 .2
SURROGATE PARAMETERS	% RECOVERY QC LIMIT

65-135 75-125 75-125

107 81 91

1,2-DICHLOROETHANE-D4 TOLUENE-D8 BROMOFLUOROBENZENE

R.L.: Reporting limit

: Out of QC

E : Exceeded calibration range

B : Found in associated method blank

J : Value between R.L. and MDL

D : Value from dilution analysis

D.O.: Diluted out



***********			5==52220566	
Client : SES-TECH		Date	Collected:	07/21/05
Client : SES-TECH Project : CAMP PENDLETON, I Batch, No. : 056188	UST SITE 16144	Date	Received:	07/22/05
Ratch No + 050188		i a te	Extracted:	08/01/05 11:51
Sample ID: 0003-059		Date	Applyred	08/01/05 11:51
Lab Samp ID: G188-05R			ion Factor:	
Lab File ID: RG0812				WATER
Ext Btch ID: V005G68			sture :	
Calib. Ref.: RGQ142			ument ID :	
美国美国市民民党区内区区区区区区区区区区区区区区区区区	arrences estates	*# # 5 2 2 6 2 2 2	n=022======	
			В.	1101
	•	RESULTS	RL	MDL
PARAMETERS		(ug/l)	(ug/t)	(ug/L)
1,1,1-TRICHLOROETHANE	•	ND	. 5	.2
1,1,2,2-TETRACHLOROETHANE		ND 🦠	1.	.2
1,1,2-TRICHLOROETHANE		ND	5	.2
1,1-DICHLOROETHANE		ND	5	.2
1.1-DICHLOROETHENE		ND	' 5	.2
1.2-DICHLOROETHANE	二 二	ND	.5	.2
1.2-DICHLOROPROPANE		ND	5	.2
METHYL ETHYL KETONE		5.4J	50	.2
2-HEXANONE		ND	50	5
4-METHYL-2-PENTANONE (MIBK)		ND	50	Ę
		17J	50	5 5 .2
ACETONE		ND	.5	5
BENZENE		ND	. 5	.2
BROMOD I CHLOROMETHANE			5	.3
BROMOFORM		ND	5	
BROMOMETHANE		ND	5	.2 .2
CARBON TETRACHLORIDE		ND	.5	
CHLOROBENZENE		ND	5 5 5	.2
CHLOROETHANE		ND	5	.2
CHLOROFORM		ND	5	.2
CHLOROMETHANE		ИĎ	5 5	.2
CIS-1,2-DICHLOROETHENE		.77J	5	.2
CIS-1,3-DICHLOROPROPENE		ND	.5	.2
DIBROMOCHLOROMETHANE		ND	5	.2
ETHYLBENZENE		ND	.5	.2
XYLENES		ND	5	.2
MTBE		ND	1	.2
METHYLENE CHLORIDE		ND	5	.5
STYRENE		ND	5 5	.2
TETRACHLOROETHYLENE		ND	5	.2
TOLUENE		.37J	.5	.2
TRANS-1,2-DICHLOROETHENE		ND	5	.2
TRANS-1,3-DICHLOROPROPENE		КD	.5	.2
TRICHLOROETHENE		ND	Š	.2
		ND	50	.5
VINYL ACETATE VINYL CHLORIDE		ND	.š	ž
		ND	20	.5
TERT-BUTYL ALCOHOL		ND	5	ž.
DIISOPROPYL ETHER		ND	ร์	.2
ETHYL TERT-BUTYL ETHER		ИD	5	.2
TERT-AMYL METHYL ETHER		กบ	,	• 4
SURROGATE PARAMETERS	% RE	COVERY	QC LIMIT	

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1.2-DICHLOROETHANE-D4	101	65-135
TOLUENE-D8	82	75-125
BROMOFLUOROBENZENE	90	75-125

R.L.: Reporting limit

* : Out of QC

E : Exceeded calibration range

B : Found in associated method blank

J : Value between R.L. and MDL

D : Value from dilution analysis

D.O.: Diluted out



Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G188
Sample ID: 0003-060
Lab Samp ID: G188-06R
Lab File ID: RGQ813
Ext Btch ID: V005G68
Calib. Ref.: RGQ142 Date Collected: 07/21/05
Date Received: 07/22/05
Date Extracted: 08/01/05 12:29
Date Analyzed: 08/01/05 12:29
Dilution Factor: 1 Matrix : WATER % Moisture : NA Instrument ID : T-005

	RESULTS	RL	MOL
PARAMETERS	(ug/L)	' (ug/L)	(ug/L)
1 1 1-TDICUIODOSTUANE	ND	5	.2
1,1,1-TRICHLOROETHANE 1,1,2,2-TETRACHLOROETHANE	ND ·	' 1	.5
1,1,2-TRICHLOROETHANE	ND	5	
1,1-DICHLOROETHANE	ND ND	ź	
1.1-DICHLOROETHENE	ND	· ś	
	→ ND	. 5	
1,2-DICHLOROETHANE 1,2-DICHLOROPROPANE	ND	-5	ر.
METHYL ETHYL KETONE	~ ND	5Ő	
2-HEXANONE	ND	50	• • • • • • • • • • • • • • • • • • • •
4-METHYL-Z-PENTANONE (MIBK)	ND	50	ś
	12J	50	ξ.
ACETONE	ND	.5	5
BENZENE	ND ND		
BROMODICHLOROMETHANE	ND ND	2	. E.
BROMOFORM	ND ND	5 5 5 .5	
BROMOMETHANE	ND ND	,	ء.
CARBON TETRACHLORIDE		.5	٠٤
CHLOROBENZENE	ND	2	• • •
CHLOROETHANE	DM DM	5 5 5 5 5	• • •
CHLOROFORM		2	٠,٢
CHLOROMETHANE	ND .71J	2	۰.6
CIS-1,2-DICHLOROETHENE		2	٠٤
CIS-1,3-DICHLOROPROPENE	ND	5	٠.٤
DIBROMOCHLOROMETHANE	ND	.5	• • •
ETHYLBENZENE	ND		.4
XYLENES	ND	5	٠,٢
MTSE	ND	1	٠.٤
METHYLENE CHLORIDE	ND	5 5 5 .5	٠,٦
STYRENE	ND	2	٠,٤
TETRACHLOROETHYLENE	ND	2	٠.
TOLUENE	ND	.2	٠,٤
TRANS-1,2-DICHLOROETHENE	ND	5 .5	٠٤
TRANS-1,3-DICHLOROPROPENE	ND		٠.٤
TRICHLOROETHENE	ND	5	.4
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	2
DIISOPROPYL ETHER	'ND	5	.2 .2 .2 .5 .2 .5 .2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1.2-DICHLOROETHANE-D4	102	65-135
TOLUENE-D8	81	75-125
BROMOFLUOROBENZENE	86	75 - 125

Reporting limit Out of QC R.L. :

E : Exceeded calibration range
B : Found in associated method blank
J : Value between R.L. and MDL
D : Value from dilution analysis
D.O. : Diluted out



QC SUMMARIES



QC DATA



Client : SES-TECH		Collected:	
Project : CAMP PENDLETON, UST SITE		Received:	
Butch No. : 05G188			07/31/05 03:39
Sample ID: MBLK1W			07/31/05 03:39
Lab Samp ID: VC05G64Q	Dilut	ion Factor:	1
Lab File ID: RGQ761	Matri	ix :	WATER
Ext Btch ID: V005G64	% Moi	sture :	NA
calib. Ref.: RGQ142	Instr	ument ID :	T-005

	RESULTS	. RL	MDL
PARAMETERS	(ug/L)	" (ug/L)	(ug/L)
	***		*****
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	' 1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1.1.2~IRIGALUNUEIRANE			

4 4 4 701500 0005701405	ND	5	-
1,1,1-TRICHLOROETHANE	ND -	· 1	.2 .2
1,1,2,2-TETRACHLOROETHANE	ND		• • • •
1,1,2-TRICHLOROETHANE		5 5 5	.2 .2 .2
1,1-DICHLOROETHANE	ND .	2	
1,1-DICHLOROETHENE	ND	5	٠٤
1,2-DICHLOROETHANE	" ND	.s	.2
1,2-D1CHLOROPROPANE	ND		٠,٤
METHYL ETHYL KETONE	- ND	50	. ب
2-HEXANONE	ND	50	5 5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	.2 .2
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.ئ
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5555555555555	
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	- 5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	5 5 5 .5	.5 .2 .2 .2
TRANS-1,2-DICHLOROETHENE	מא	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	,5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	.2 .2 .2 .5 .2 .5 .2
DIISOPROPYL ETHER	ND	5	,ž
ETHYL TERT-BUTYL ETHER	ND	Ś	
TERT-AMYL METHYL ETHER	ND	5	.2
JEDI FRIE PRESIDE CINER	,,,,	•	

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	85	65 - 135
TOLUENE-D8 BROMOFLUOROBENZENE	89 94	75 - 125 75 - 125

R.L.: Reporting limit

* : Out of QC

E : Exceeded calibration range

B : Found in associated method blank

J : Value between R.L. and MDL

D : Value from dilution analysis

D.O. : Diluted out



EMAX QUALITY CONTROL DATA LCS/LCD ANALYSIS

CLIENT:

PROJECT: BATCH NO.:

SES-TECH CAMP PENDLETON, UST SITE 16144 05G188

METHOD:

MATRIX:

SAMPLE ID:

SW 50308/8260B

WATER.

DILUTION FACTOR: 1

MBLK1W

LAB SAMP ID: LAB FILE ID: DATE EXTRACTED:

MBLKTW V005G64Q V005G64L RG0751 RG0758 07/31/0503:39 07/31/0501:47 V005G64 V005G64

07/31/0502:24 07/31/0502:24 V005G64 RGQ142

1

V005G64C RGQ759

DATE COLLECTED: NA DATE RECEIVED: 07/31/05

% MOISTURE:

NA

DATE ANALYZED: PREP. BATCH: CALIB. REF:

RG0142

RGQ142

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT	MAX RPD
1,1-Bichloroethene	ND		10	8.64	86	10	8.27	83	4	75-125	20
Benzene	ND		10	10.9	109	10	10.6	106	3	75-125	20
Chlorobenzene	ND		10	10.6	106	10	10.1	101	5	75-125	20
Toluene	ND		10	11.5	115	10	11	110	5	75-125	20
Trichloroethene	ND		10	10.2	102	10	9.72	97	5	75-125	20

BSD QC LIMIT BS SPIKE AMT BSD RSLT BS RSLT SPIKE AMT % REC (ug/L) % REC (%) (ug/L) (ug/L) SURROGATE PARAMETER (ug/L) 65-135 75-125 75-125 82 1,2-Dichloroethane-d4 8.39 84 8.19 10 10 10 10 8.18 8.77 82 88 81 Toluene-d8 10 8.13 10 85 Bromofluorobenzene 8.52



Client : SES-TECH Project : CAMP PENDLETON, UST SITE 16144 Batch No. : O5G188 Sample ID: MBLKZW Lab Samp IO: VOO5G680 Lab File ID: RGQ801 Ext Btch ID: VOO5G68 Calib. Ref.: RGG142	Date Collected: NA Date Received: 08/01/05 Date Extracted: 08/01/05 04:56 Date Analyzed: 08/01/05 04:56 Dilution Factor: 1 Matrix : WATER % Moisture : NA Instrument ID : T-005
一一一一一一一一一一二二二二二二二二二二二二二二二二二二二二二二二二二二二二二	***************************************

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
	ND	5	.2
1,1,1-TRICHLOROETHANE	ND	, 1	.2
1,1,2,2-TETRACHLOROETHANE	ND		.2
1,1,2-TRICHLOROETHANE	ND	5 5	
1,1-DICHLOROETHANE	MA	5	. 2
1,1-DICHLOROETHENE	ND ND	ś	.2
1,2-DICHLOROETHANE	ND	5	.2
1,2-DICHLOROPROPANE	. ND	5 <u>0</u>	.2
METHYL ETHYL KETONE	ND	50	Š
2-HEXANONE	ND	ŠŎ	Ś
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	.5	.5
BENZENE	ND		.5
BROMOD I CHLOROMETHANE	ND	ŕ	.3
BROMOFORM	ND D	ŕ	.5
BROMOMETHANE	ND	Ę	.5
CARBON TETRACHLORIDE	ND	555555555555555555555555555555555555555	. 2
CHLOROBENZENE	ND ND	ś	.5
CHLOROETHANE	ND	Š	
CHLOROFORM	ND	Š	
CHLOROMETHANE	ND	ξ	.5
CIS-1,2-DICHLOROETHENE		έ	. 5
CIS-1,3-DICHLOROPROPENE	ND KD		.5
DIBROMOCHLOROMETHANE	ND	5 5	, ,
ETHYLBENZENE	ND ND	.2	, ,
XYLENES	ND ON	5 1	
MTBE		E	• 6
METHYLENE CHLORIDE	HD	í	.,
STYRENE	ND	ر د	
TETRACHLOROETHYLENE	NO NO	5 5 5 .5	.5
TOLUENE	ND	5	۰۵
TRANS-1,2-DICHLOROETHENE	ND	,5	٠٤
TRANS-1,3-DICHLOROPROPENE	ND	. 5 5	٠,6
TRICHLOROETHENE	ND	50	. <u></u>
VINYL ACETATE	ND		٠,٠
VINYL CHLORIDE	HD	.5 20	้ารายกราชการกราชการกราชการกราชการการการการการการการการการการการการการก
TERT-BUTYL ALCOHOL	ND		3
DIISOPROPYL ETHER	ДN	5 5	.2 .2
ETHYL TERT-BUTYL ETHER	ND	5 5	.2
TERT-AMYL METHYL ETHER	ND	5	.2
A STATE OF THE PARTIES OF THE PARTIE	4 actualed	DC LIMIT	

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT

1,2-DICHLOROETHANE-04	103	65-135
TOLUENE-DB	80	75 - 125
BROMOFLUOROBENZENE	98	75 - 125

R.L.: Reporting limit

* : Out of QC

E : Exceeded calibration range

B : Found in associated method blank

J : Value between R.L. and MOL

D : Value from dilution analysis

D.O.: Diluted out



EMAX QUALITY CONTROL DATA LCS/LCD ANALYSIS

CLIENT:

PROJECT:

SES-TECH CAMP PENDLETON, UST SITE 16144 05G188

BATCH NO .:

METHOD:

SW 5030B/8260B

WATER .

% MOISTURE:

NA

MBLK2W VO05G68Q RGQ801

MATRIX: W/A
DILUTION FACTOR: 1
SAMPLE ID: ME
LAB SAMP ID: VC
LAB FILE ID: RC
DATE EXTRACTED: OC DATE ANALYZED:

08/01/0504:56 08/01/0504:56 V005G68 V005G68L RGQ778 08/01/0503:02 08/01/0503:02 V005G68

DATE COLLECTED: NA DATE RECEIVED: 08/01/05

PREP. BATCH: CALIB. REF:

RGQ142

V005668C RGQ799 08/01/Q503:40 08/01/0503:40 V005668

RGQ142

RGQ142

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT	MAX RPD
1,1-Dichloroethene Benzene Chlorobenzene Toluene Trichloroethene	ND ND ND ND	- 10 10 10 10 10	9.16 10.2 10.1 10.8 9.79	92 102 101 108 98	10 10 10 10 10	8,99 10.3 10.1 10.8 9.82	90 103 101 108 98	2 1 0 0	75-125 75-125 75-125 75-125 75-125	20 20 20 20 20 20

SPIKE AMT (ug/L) SPIKE AMT BS RSLT BS BSD RSLT BSD SURROGATE PARAMETER % REC (ug/L) (ug/L) (ug/L) % REC (%) 9.48 7.98 65-135 75-125 1,2-Dichloroethane-d4 10 95 10 9.32 93 Toluene-d8 10 80 10 8 80 Bromofluorobenzene 10 8.6 86 10 8.48 85 75-125



LABORATORY REPORT FOR

' SES-TECH

CAMP PENDLETON, UST SITE 16144

SW 3520C/8270C SIM SEMI VOLATILE ORGANICS BY GC/MS

SDG#: 05G188



CASE NARRATIVE

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

SDG:

05G188

SW 3520C/8270C SIM SEMI VOLATILE ORGANICS BY GC/MS

Five (5) water samples were received on 07/22/05 for Semi Volatile Organic analysis by Method 3520C/8270C SIM in accordance with USEPA SW846, 3rd ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoverles were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met,



LAB CHRONICLE SEMI VOLATILE ORGANICS BY GC/MS

Project : (: CAMP PENDLETON, UST SITE 16164	17177						200	: 056188
	***************************************	1 2						Instrum	Instrument ID : T-052
					VATER				
Client	Laboratory	Dilution	×	Analysis	Extraction	Sample	Calibration Prep.	on Prep.	
Sample 1D	Sample 10	Factor	Hoist	Datelime	DateTime	Data FN	Data FN	Batch	Notes
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1					1 1 1 1 1	
4BLK1V	SVG026VB		HA	08/04/0500:15	07/28/0518:30	RHK036	RHKOO8	SVG026W	Hethod Blank
LCS1W	SVG026UL	-	HA	08/04/0500:37	07/28/0518:30	RHK037	RHK008	SVGDZ6W	Lab Control Sample (LCS)
CD1W	SVG0264C	-	A.	08/04/0500:58	07/28/0518:30	RHK038	RHK008	SVG0264	LCS Duplicate
3003-056	6188-02	96.	¥	08/04/0501:20	07/28/0518:30	RHK039	RHK008	SVG0264 V	Field Sample
1003-057	G188-03	-	¥	08/04/0501:42	07/28/0518:30	RHK040	RHK008	SVG026H	Field Sample
0003-058	G188-04	76.	≨	08/04/0502:04	07/28/0518:30	RHK041	RHKOOS	SV6026W	Field Sample
0003-059	6188-05	8.	¥	08/04/0502:26	07/28/0518:30	RHK042	RHK008	SVG0264	Field Sample
0003-060	6188-06	8	4.4	77-60507 707 80	07.28.0510.30	270700	800724	11760000	First of County

FN - Filename % Moist - Percent Moisture



SAMPLE RESULTS



Client : SES-TECH Date Collected: 07/21/05 Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G188
Sample ID: 0003-056 Date Received: 07/22/05 Date Extracted: 07/28/05 18:30 Date Analyzed: 08/04/05 01:20 Lab Samp ID: G188-02 Dilution Factor: .96 Lab File ID: RHK039 : WATER Matrix Ext Btch ID: SVG026W % Moisture : NA Instrument ID : T-052 Calib. Ref.: RHK008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
			103727
ACENAPHTHENE	ND	.96	-19
ACENAPHTHYLENE	→ ND	.96	.19
ANTHRACENE	ND	1.9	-19
BENZO(A)ANTHRACENE	ND	1.9	.19
BENZO(A)PYRENE	ND	.96	. 19
BENZO(B)FLUORANTHENE	ND	.96	.19
BENZO(K)FLUORANTHENE	ND	1.9	.19
BENZO(G,H,I)PERYLENE	ND	.96	.19
CHRYSENE	ND	1.9	.19
DIBENZO(A, H) ANTHRACENE	ND	-96	. 19
FLUORANTHENE	ND	1.9	. 19
FLUORENE	ND	1.9	. 19
INDENO(1,2,3-CD)PYRENE	ЯD	.96	. 19
NAPHTHALENE	ND	.96	. 19
PHENANTHRENE	ND	.96	. 19
PYRENE	ND	1.9	.19
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TERPHENYL-D14	69	50-130	

RL: Reporting Limit



Client : SES-TECH	Date Collected: 07/21/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/22/05
Batch No. : 05G188	Date Extracted: 07/28/05 18:30
Sample ID: 0003-057	Date Analyzed: 08/04/05 01:42
Lab Samp ID: G188-03	Dilution Factor: 1
Lab File ID: RHK040	Matrix : WATER
Ext Btch ID: SVG026W	% Moisture : NA
Calib. Ref.: RHK008	Instrument ID : T-052

	RESULTS	RL	MOL
PARAMETERS	(ug/L)	(ug/L)	(ug/L)
ACENAPHTHENE	ND	1	.2
ACENAPHTHYLENE	> ND	1	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	, ND	Z	.2
BENZO(A)PYRENE	ND	1	.2
BENZO(B)FLUORANTHENE	ND	1	.2
BENZO(K) FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	1	s.
CHRYSENE	ND	2	.2
DIBENZO(A, H)ANTHRACENE	ND	1	.2
FLUORANTHENE	ND	2	.2
FLUORENE	HD	2	.2
INDENO(1,2,3-CD)PYRENE	ND	1	.2
NAPHTHALENE	· ND ,	1	.2
PHENANTHRENE	MD	1	.2
PYRENE	ND	2	.2

SURROGATE PARAMETERS % RECOVERY QC LIMIT
TERPHENYL-D14 72 50-130

RL: Reporting Limit



4075	在在中间上的现在分词
Client : SES-TECH	Date Collected: 07/21/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/22/05
Batch No. : 05G188	Date Extracted: 07/28/05 18:30
Sample ID: 0003-058	Date Analyzed: 08/04/05 02:04
Lab Samp ID: G188-04	Dilution Factor: .97
Lab File ID: RHKO41	Matrix : WATER
Ext Btch ID: SVG026W	% Moisture : NA
Calib. Ref.: RHK008	Instrument ID : T-052

	RESULTS	RL	MDL
PARAMETERS	(ug/L)	(ug/L)	(ug/L)
ACENAPHTHENE	ND	.97	.19
ACENAPHTHYLENE	> ND	.97	.19
ANTHRACENE	ND	1.9	.19
BENZO(A)ANTHRACENE	ND	1.9	.19
BENZO(A)PYRENE	ND	.97	.19
BENZO(B) FLUORANTHENE	ND	.97	.19
BENZO(K) FLUORANTHENE	ND	1.9	.19
BENZO(G,H,I)PERYLENE	ND	.97	.19
CHRYSENE	ND	1.9	. 19
DIBENZO(A, H)ANTHRACENE	ND	.97	. 19
FLUORANTHENE	ND	1.9	. 19
FLUORENE	HD	1.9	. 19
INDENO(1,2,3-CD)PYRENE	ND	.97	.19
NAPHTHALENE	ND	.97	. 19
PHENANTHRENE	ND	.97	.19
PYRENE	ND	1.9	.19
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	

50~130

TERPHENYL-D14 80

RL: Reporting Limit



Client : SES-TECH	Date Collected: 07/21/05
Project : CAMP PENDLETON, UST SITE 16144	Date Received: 07/22/05
Batch No. : 05G188	Date Extracted: 07/28/05 18:30
Sample ID: 0003-059	Date Analyzed: 08/04/05 02:26
Lab Samp ID: G188-05	Dilution Factor: .99
Lab File ID: RHKO42	Matrix : WATER
Ext Btch ID: SVG026W	% Moisture : NA
Calib. Ref.: RHKOO8	Instrument ID : T-052

÷	RESULTS	RL	MDL
PARAMETERS	(ug/L) ¹	(ug/L)	(ug/L)

ACENAPHTHENE	ND	.99	.2
ACENAPHTHYLENE	⇒ ND	.99	,2
ANTHRACENE	HD	2	.2
BENZO(A)ANTHRACENE	, ND	2	.2
BENZO(A)PYRENE	ND	.99	.2
BENZO(B)FLUORANTHENE	ND	.99	.2
BENZO(K)FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	.99	.2
CHRYSENE	ND	. 2	.2
DIBENZO(A,H)ANTHRACENE	ND	.99	.2
FLUORANTHENE	ND	2	.2
FLUORENE	ND	2	.2
INDENO(1,2,3-CD)PYRENE	ND	.99	.2
NAPHTHALENE	ND	.99	.2
PHENANTHRENE	ND	.99	.2
PYRENE	ND	2	.2
SURROGATE PARAMETERS	% RECOVERY	OC LIMIT	

SURROGATE PARAMETERS % RECOVERY QC LIMIT
TERPHENYL-D14 73 50-130

RL: Reporting Limit



	RESULTS	RL	MDL
PARAMETERS	(ug/L)	(ug/L)	(ug/L)
ACENAPHTHENE	ND	-99	.2
ACENAPHTHYLENE	S ND	.99	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	.99	.2
BENZO(B) FLUORANTHENE	ND	.99	.2
BENZO(K) FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	.99	.2
CHRYSENE	ND	2	.2
DIBENZO(A, H)ANTHRACENE	ND	.99	.2
FLUORANTHENE	ND	2	.2
FLUORENE	ND	2	.2
INDENO(1,2,3-CD)PYRENE	ND	.99	.2
NAPHTHALENE	NÐ	.99	.2
PHENANTHRENE	ND	.99	.2
PYRENE	ND	2	.2

SURROGATE PARAMETERS % RECOVERY QC LIMIT
TERPHENYL-D14 67 50-130

RL: Reporting Limit



QC SUMMARIES



Ctient : SES-TECH
Project : CAMP PENDLETON, UST SITE 16144
Batch No. : 05G188 Date Collected: NA Date Received: 07/28/05 Date Extracted: 07/28/05 18:30 Sample ID: MBLK1W Date Analyzed: 08/04/05 00:15 Lab Samp ID: SVG026WB Lab File ID: RHK036 Dilution Factor: 1 : WATER Matrix % Moisture : NA Ext Btch ID: SVG026W Instrument ID : T-052 Calib. Ref.: RMK008

	RESULTS	RL	HDL
PARAMETERS	(ug/L)	(ug/L)	(ug/L)

ACENAPHTHENE	ND	1	.2
ACENAPHTHYLENE	🦢 ND 📑	1	.2
ANTHRACENE	ИD	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	1	.2
BENZO(B)FLUORANTHENE	ИD	1	.2
BENZO(K) FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ИD	1	.2
CHRYSENE	ND	2	.2
DIBENZO(A, H)ANTHRACENE	ND	1	.2
FLUORANTHENE	ND	2	.2
FLUORENE	ND	2	.2
INDENO(1,2,3-CD)PYRENE	ND	1	.2
NAPHTHALENE	ND	1	.2
PHENANTHRENE	ND	1	.2
PYRENE	ND	2	.2
	# DECOVERY	00 1 1917	

SURROGATE PARAMETERS % RECOVERY QC LIMIT
TERPHENYL-D14 83 50-130

RL: Reporting Limit



EMAX QUALITY CONTROL DATA. LCS/LCD ANALYSIS

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

BATCH NO.:

05G188

METHOD:

SW 3520C/8270C SIM

MATRIX:

WATER

% MOISTURE:

NA

DILUTION FACTOR: 1 SAMPLE ID:

LAB SAMP ID:

MBLK1W SVG026WB RHK036

SVG026WL RHK037

SVG026W8 RHK038

LAB FILE ID: DATE EXTRACTED: 07/28/0518:30 07/28/0518:30 07/28/0518:30

08/04/0500:15 08/04/0500:37 08/04/0500:58

DATE COLLECTED: NA DATE RECEIVED: 07/28/05

DATE ANALYZED: PREP. BATCH: SVG026W

SVG026W

CALIB. REF:

RHK008

SVG026W RHK008

RHK008

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKÉ AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT	MAX RPD
Acenaphthene	ND	10	8.02	80	10	7.87	79	2	40-130	30
Acenaphthylene	ND	10	8.74	87	10	8.51	85	3	40-130	30
Anthracene	ND	10	7.8	78	10	7.5	75	4	50-130	30
Benzo(a)anthracene	ND	10	8.44	84	10	8.22	82	3	50-130	30
Benzo(a)pyrene	ND	10	8.42	84	10	8.45	84	0	50-130	30
Benzo(b)fluoranthene	ND	10	8.14	81	10	8.5	85	4	50-130	30
Benzo(k)fluoranthene	ND	10	8	80	10	7.29	73	9	30-150	30
Benzo(g,h,i)perylene	HD	10	8.28	83	10	8.2	82	1	50-130	30
Chrysene	ND	10	8.49	85	10	8.64	86	2	50-130	30
Dibenzo(a,h)anthracene	ND	10	8.3	83	10	8.24	82	1	40-140	30
Fluoranthene	ND	10	8,24	82	10	8.04	80	2	50-130	30
Fluorene	ND	10	8.54	85	10	8.61	86	1	40-130	30
Indeno(1,2,3-cd)pyrene	ND	10	7.67	77	10	7.95	79	3	30-140	30
Naphthal ene	ND	10	7.17	72	10	6.95	69	3	30-130	30
Phenonthrene	ND	10	7.49	75	10	7.27	73	3	40-130	30
Pyrene	ND	10	8.5	85	10	8.25	82	3	40-130	30

	SPIKE AMT	BS RSLT	88	SPIKE AMT	BSD RSLT	BSD	QC LIMIT
SURROGATE PARAMETER	(ug/L)	(ug/L)	% REC	(ug/L)	(ug/L)	% REC	(%)

Terphenyl-d14	10	8.49	85	10	8.19	82	50-130



LABORATORY REPORT FOR

· SES-TECH

CAMP PENDLETON, UST SITE 16144

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 05G188



CASE NARRATIVE

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

SDG:

05G188

METHOD 3520C/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Five (5) water samples were received on 07/22/05 for Total Petroleum Hydrocarbons by Extraction analysis by Method 3520C/8015B in accordance with SW846 3RD Edition.

1. Holding Time

Analytical holding time was met. Extraction was performed on 07/28/05 and completed on 07/29/05.

2. Calibration

Initial calibration was seven points for Diesel. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals and all recoveries were within 85-115%.

3. Method Blank

Method blank was free of contamination at half of the reporting limit.

4. Surrogate Recovery

All recoveries were within QC limits.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No sample was designated for MS/MSD.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met. Samples were quantitated from C10 to C24 using Diesel (C10-C24) calibration factor.

Samples G188-03 to -06 displayed motor oil-like fuel pattern.

LAB CHROWICLE TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

									00150
Project : CAMP	CAMP PENDLETON, UST SITE	16144						Instru	Instrument ID : GCT050
					ISSET SECTION OF THE PROPERTY				
Client	Laboratory	Dilution	×	Analysis	Extraction	Sample	Calibration Prep.	n Prep.	•
Sample ID	Sample 1D	Factor	Hoist		DateTime	Data FR	Data FN	Batch	Notes
,	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			# # # # # # # # # # # # # # # # # # #				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
MBLK1W	BSC0394B	-	¥	07/31/0514:40	07/28/0518:00	TG28098A	TG28089A	DSC0394	Method Blank
LCS1#	DSG0394L	-	×	07/31/0513:16	07/28/0518:00	TG28096A	TG28089A		Lab Control Sample (LCS)
LCD1¥	DSG0394C	_	2	07/31/0513:58	07/28/0518:00	TG28097A	TG28089A		LCS Dublicate
0003-056	6188-02	76.	AH.	07/31/0515:22	07/28/0518:00	TG28099A	TG28089A		Field Sample
0003-057	G188-03	-	¥	07/31/0516:04	07/28/0518:00	TG28100A	TG28089A		Field Sample
0003-058	6188-04	76.	¥ ,	07/31/0518:10	07/28/0518:00	TG28103A	TG28101A	DSG039W	Field Sample
0003-059	G188-05	•	, NA	07/31/0518:52	07/28/0518:00	TG28104A	TG28101A		Field Sample
0903-060	6188-06	1.02	¥	07/31/0519:34	07/28/0518:00	TG28105A	TG28101A		Field Sample

FN - Filename % Moist - Percent Moisture



SAMPLE RESULTS



METHOD 3520C/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

=======================================			=========	========	========
Client : SES-TECH			Date Colle	cted: 07/21	/05
Project : CAMP PENDLE	TON, UST	SITE 16144	Date Rece	ived: 07/22	705
Batch No. : 05G188			Date Extra	cted: 07/28	705 18:00
Sample ID: 0003-056			Date Anal	yzed: 07/31	/05 15:22
Lab Samp ID: G188-02	, .		Dilution Fa	ctor: .94	
Lab File ID: TG28099A			Matrix	: WATER	
Ext Btch ID: DSG039W			% Moisture	: NA	
Calib. Ref.: TG28089A			Instrument	ID : GCTOS	0
======================================	=======			========	******
			1		
		RES	ULTS	RL	MDL
PARAMETERS		(m	g/L) (m	g/L)	(mg/L)
			;		
DIESEL			ND	.094	.024
SURROGATE PARAMETERS		% RECO	VERY QC	LIMIT	
HEXACOSANE			82 6	5-135	
RL : Reporting Limi	٠	**	,		
Parameter H-C Rang			•		
Diesel C10-C24	·C				
D 10 00 00 00 00 00 00 00 00 00 00 00 00		Snika	QC Limit	Or Limit	
SURR : Hexacosane	Water		63-165%		
SOUL FUCKEDSBILE	Soil	25 mg/kg	- 107W	- UJ = (J)A	

Page 1 of 1

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg28\tg28.099
Method : c:\ezchrom\methods\ds50c31.met

Sample ID : 05G188-02

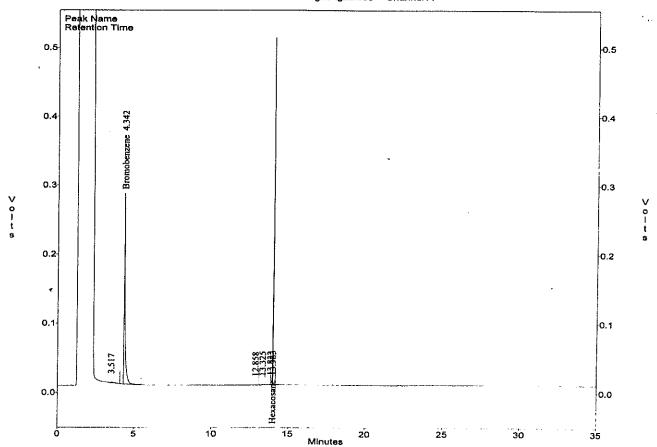
Acquired : Jul 31, 2005 15:22:25 Printed : Aug 01, 2005 12:10:40

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppm)
2	Bromobenzene	4.342 -	1260460	16597.4	75.9
6	Hexacosane	13.983 1	646820	31504.4	- 20.5
G1	Diesel (TOTAL)	•	28931	25205.2	- 1.1
G2	Diesel(C10-C24)		4574	25139.0	0.2
G3	Diesel(ClO-C28)		6424	25150.4	0.3

c:\ezchrom\chrom\tg28\tg28.099 -- Channel A





METHOD 3520C/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH	Date Col	lected: 07/21/05
Project : CAMP PENDLETON, UST S	ITE 16144 Date Rec	ceived: 07/22/05
Batch No. : 05G188	Date Ext	racted: 07/28/05 18:00
Sample ID: 0003-057	Date Ana	alyzed: 07/31/05 16:04/
Lab Samp ID: G188-03 Lab File ID: TG28100A	Dilution (Factor: 1
Lab File ID: TG28100A	Matrix	: WATER
Ext Btch ID: DSG039W	% Moisture	e : NA
Calib. Ref.: TG28089A	Instrument	t ID : GCT050
=======================================		
	4	
	RESULTS	RL MDL
PARAMETERS	(mg/L) ((mg/L) (mg/L)
DIESEL	.27	.1 .025
	* =====================================	
SURROGATE PARAMETERS	% RECOVERY C	IC LIMIT
UCVACOCANC		65-135
HEXACOSANE	96	02-133
RL : Reporting Limit	st.	
Parameter H-C Range		
Diesel C10-C24		
51555 610 0E7	Spike QC Limit	OC Limit
SURR : Hexacosane Water		
Soil	25 mg/kg 65-135%	



Page 1 of 1

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg28\tg28.100
Method : c:\ezchrom\methods\ds50c31.met /

Sample ID : 05G188-03

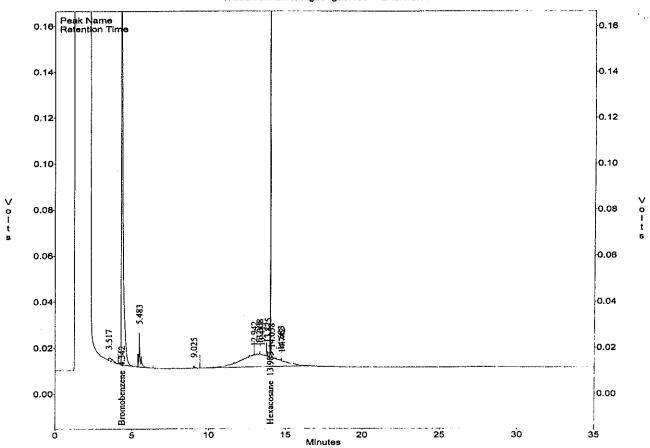
Acquired : Jul 31, 2005 16:04:26 / Printed : Aug 01, 2005 12:12:59

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
2	Bromobenzene	4.342 -	1541161	16597.4-	92.9
9	Hexacosane	13.983 ′	759713	31504.4-	24.1
G1	Diesel(TOTAL)	•	919832	25205.2	36.5
G2	Diesel(C10-C24)		680000	25139.0	27.0
G3	Diesel(C10-C28)		896256	25150.4	- 35.6

c:\ezchrom\chrom\tg28\tg28.100 -- Channel A





METHOD 3520C/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

		==========	=========		
Client : SES-TECH Project : CAMP PENDLET Batch No. : 05G188 Sample 10: 0003-058 Lab Samp ID: G188-04 Lab File ID: TG28103A Ext Btch ID: DSG039W Calib. Ref.: TG28101A		ITE 16144 D.D.D.D.D.D.D.M.	ate Collect ate Receive ate Extract ate Analyz ilution Fact atrix Moisture	ed: 07/22/05 ed: 07/28/05 ed: 07/31/05 or: .97 : WATER : NA	18:00
	========	=======================================	========		
PARAMETERS			' L) (mg/		MDL (mg/L)
DIESEL		4.9		97	.024
SURROGATE PARAMETERS HEXACOSANE			RY QC L 6 65-		
RL : Reporting Limit Parameter H-C Range Diesel C10-C24	e	Spike 0.25 mg/L	QC Limit 63-165%	QC Limit 65-135%	
SURR : Hexacosane	Soil	25 mg/kg		65-135%	



Page 1 of 1

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File Method

: c:\ezchrom\chrom\tg28\tg28.103

: c:\ezchrom\methods\ds50c31.met -

Sample ID

: 05G188-04

: Jul 31, 2005 18:10:21 : Aug 01, 2005 12:14:34

Acquired Printed

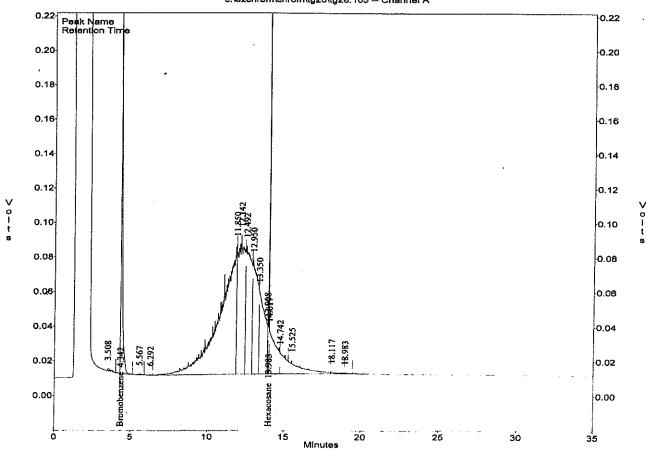
User

: JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
2	Bromobenzene	4.342	1440031	16597.4 _	86.8
11	Hexacosane	13.983 ~	917003	31504.4	29.1
G1	Diesel (TOTAL)	•	13542613	25205.2-	537.3
	Diesel(C10-C24)		12677107	25139.0 -	504.3
G3	Diesel(C10-C28)	* · · · · · · · · · · · · · · · · · · ·	13029986	25150.4	518.1

c:\ezchrom\chrom\tg28\tg28.103 -- Channel A





METHOD 3520C/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

E 16144 Date	Received:	07/22/05
Date	Extracted:	07/28/05 18:00
Date	Analyzed:	07/31/05 18:52
Dilu	tion Factor:	1 ~
Matr	ix :	WATER
% Mo	isture :	NA
Inst	rument ID :	GCT050
	======================================	658885533355555
RESULTS	, RL	MDL
(mg/L)	(mg/L)	(mg/L)
,		
5.7	, 1	.025
% RECOVERY	QC LIMI	Т
ć		-
112	65-135	
	E 16144 Date Date Date Dilu Matr % Mo Inst RESULTS (mg/L) 5.7 % RECOVERY	Date Extracted: Date Analyzed: Dilution Factor: Matrix : % Moisture : Instrument ID : RESULTS RL (mg/L) (mg/L) 5.7 .1 % RECOVERY QC LIMI

RL: Reporting Limit
Parameter H-C Range
Diesel C10-C24

 Spike
 QC Limit
 QC Limit

 0.25 mg/L
 63-165%
 65-135%

 25 mg/kg
 65-135%
 65-135%
 SURR : Hexacosane Water Soil



Page 1 of 1

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg28\tg28.104 Method : c:\ezchrom\methods\ds50c31.met

Sample ID : 05G188-05

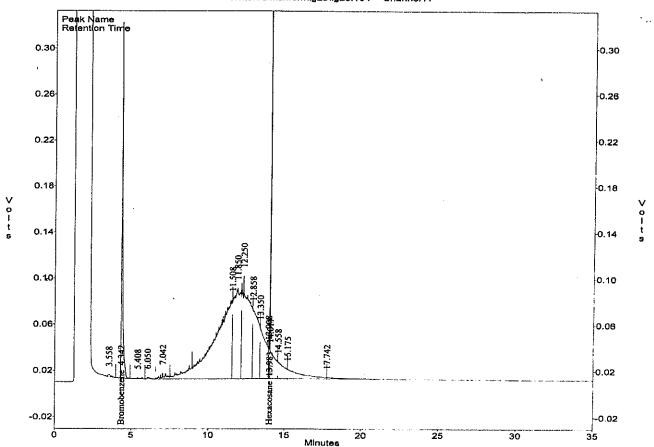
: Jul 31, 2005 18:52:25 : Aug 01, 2005 12:22:00 Acquired Printed

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
2	Bromobenzene	4.342,	1400708	16597.4	- 84.4
12	Hexacosane	13.983	879265	31504.4	27.9
	Diesel (TOTAL)	*	15296545	25205.2	- 606.9
G2	Diesel(C10-C24)		14206475	25139.0	- 565.1
G3	Diesel (Clo-C28)		14683678	25150.4	583.8

c:\ezchrom\chrom\tg28\tg28.104 -- Channel A



5011 Ekasi



METHOD 3520C/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Date Collected: 07/21/05 : SES-TECH Date Received: 07/22/05
Date Extracted: 07/28/05 18:00
Date Analyzed: 07/31/05 19:34 : CAMP PENDLETON, UST SITE 16144 Project Batch No. : 05G188 Sample ID: 0003-060 Lab Samp ID: G188-06 Lab File ID: TG28105A Dilution Factor: 1.02 : WATER Matrix Ext Btch ID: DSG039W % Moisture : NA Instrument ID : GCT050 Calib. Ref.: TG28101A RESULTS MDL (mg/L) (mg/L) (mg/L) PARAMETERS 6.3 .025 DIESEL % RECOVERY QC LIMIT SURROGATE PARAMETERS 65-135 116 HEXACOSANE RL : Reporting Limit Parameter H-C Range Diesel C10-C24 QC Limit QC Limit Spike SURR : Hexacosane Water 0.25 mg/L 63-165% 65 - 135% 65-135% Soil 25 mg/kg 65-135%



Page 1 of 1

METHOD 8015 by GC/FID EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tg28\tg28.105
Method : c:\ezchrom\methods\ds50c31.met

Sample ID : 05G188-06

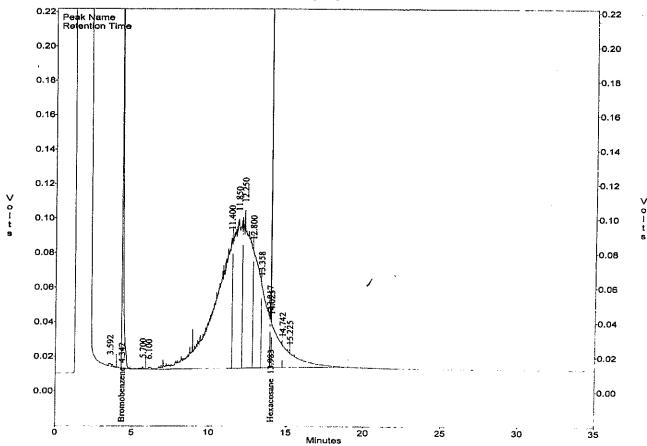
Acquired : Jul 31, 2005 19:34:27 - Printed : Aug 01, 2005 14:56:30

User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
2	Bromobenzene	4.342	1365060	16597.4	82.2
11	Hexacosane	13.983	911714	31504.4	28.9
	Diesel (TOTAL)	•	16515544	25205.2	655.2
G2	Diesel(Cl0-C24)		15589428	25139.0	620.1
G3	Diesel(C10-C28)		15952065	25150.4	634.3

c:\ezchrom\chrom\tg28\tg28.105 -- Channel A





QC SUMMARIES



METHOD 3520C/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

			=========	=========	
Client : SES-TECH Project : CAMP PENDLE Batch No. : 05G188 Sample ID: MBLK1W Lab Samp ID: D5G039WB Lab File ID: TG28098A		SITE 16144	Date Colle Date Rece Date Extra Date Anal Dilution Fa Matrix	eived: 07/2 lcted: 07/2 yzed: 07/3 lctor: 1	28/05 18:00 51/05 14:40
Ext Btch ID: DSG039W Calib. Ref.: TG28089A			% Moisture Instrument	: NA ID : GCTO	50
				=======	========
PARAMETERS			ULTS	RL g/L)	MDL (mg/L)
DIESEL		1	ND ,	.1	.025
SURROGATE PARAMETERS		% RECO	VERY . QC	LIMIT	•
HEXACOSANE			82 6	5-135	
RL: Reporting Limi Parameter H-C Rang Diesel C10-C24		•			
SURR : Hexacosane	Water Soil	0.25 mg/L	QC Limit 63-165% 65-135%	65-135%	



EMAX QUALITY CONTROL DATA LCS/LCD ANALYSIS

CLIENT:

SES-TECH

PROJECT:

CAMP PENDLETON, UST SITE 16144

BATCH NO.:

050188

METHOD:

METHOD 3520C/8015B

% MOISTURE:

MATRIX: DILUTION FACTOR: 1

WATER

07/31/0514:40

SAMPLE ID: LAB SAMP ID: LAB FILE ID: MBLK1W DSG039WB TG28098A

DSG039WL

DSG039WC

TG28096A 07/28/0518:00

TG28097A 07/28/0518:00 07/28/0518:00

DATE COLLECTED: NA

07/31/0513:16 07/31/0513:58

DATE RECEIVED: 07/28/05

DATE ANALYZED: PREP. BATCH: CALIB. REF:

DATE EXTRACTED:

DSG039W TG28089A DSG039W TG28089A DSG039W

TG28089A

ACCESSION:

BSD RPD QC LIMIT MAX RPD BLNK RSLT SPIKE AMT BS RSLT SPIKE AMT BSD RSLT BS (%) (%) (%) % REC % REC (mg/L) (mg/L) (mg/L) (mg/L) PARAMETER (ng/L) 65-135 5.74 5 5.29 106 ND Diesel

BSD RSLT BSD QC LIMIT SPIKE AMT BS RSLT 85 SPIKE -AMT (mg/L) % REC SURROGATE PARAMETER

Hexacosane

.238

95

(mg/L) .25

% REC (mg/L) .226

65-135